

Catalog H-201

SUPERSEDES J-50 AND P-50



BLACKHAWK®

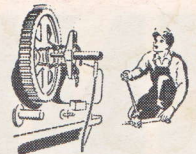
Hydraulic Tools

Hydraulic Jacks

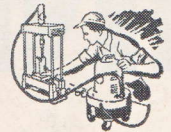
1½ TO 100 TONS

Porto-Power Jacks

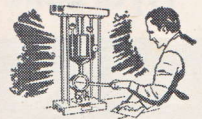
REMOTELY CONTROLLED 2 TO 50 TONS



MAINTENANCE



PRODUCTION



LABORATORY



FIELD SERVICE



BUILDING



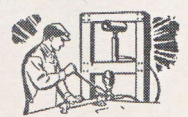
WELDING



TOOL ROOM WORK



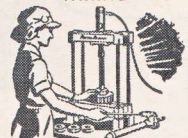
PRODUCT APPLICATION



WEIGHING-TESTING



WIRING



INSPECTION

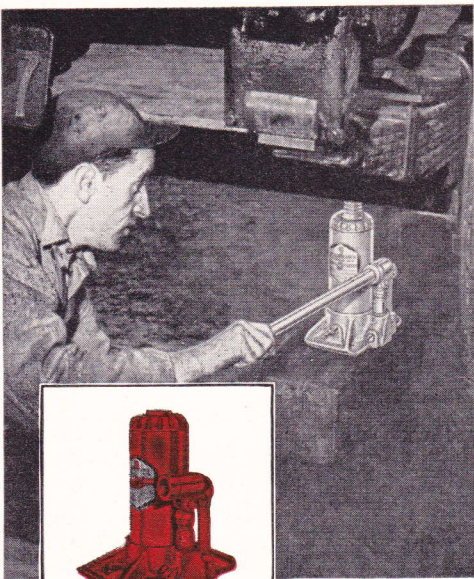


SAFETY ENGINEERING

INDEX

to the complete line
hydraulic production,

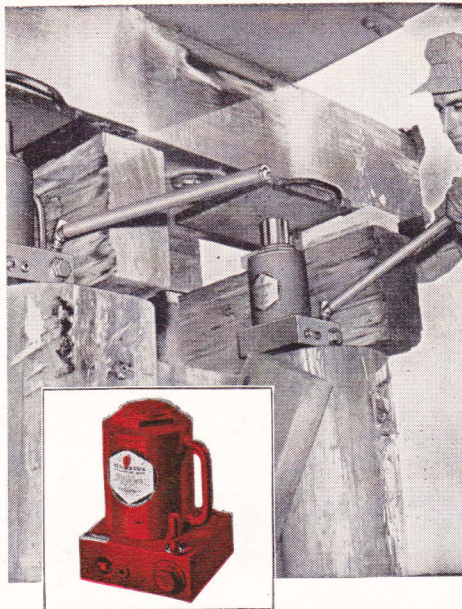
Hydraulic Hand Jacks—1½ through 100 tons—see pages 4 to 7



LIGHT HAND JACKS 1½ TO 8 TONS

Pages
4-5

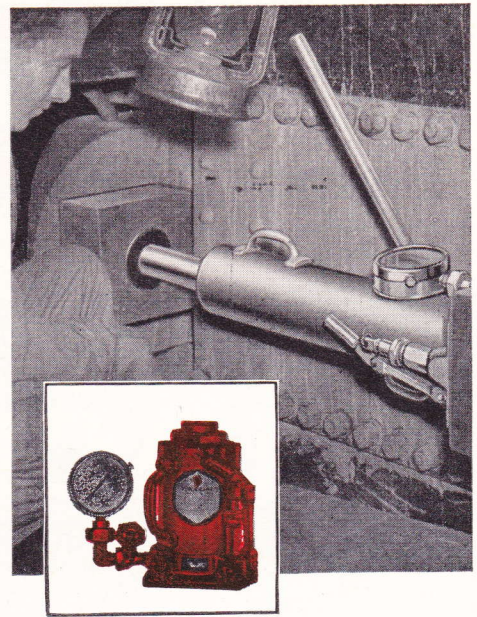
Exclusive features make these the most economical, most dependable jacks built! They out-perform, out-live all others.



HEAVY-DUTY HAND JACKS, 12 TO 100 TONS

Pages
6-7

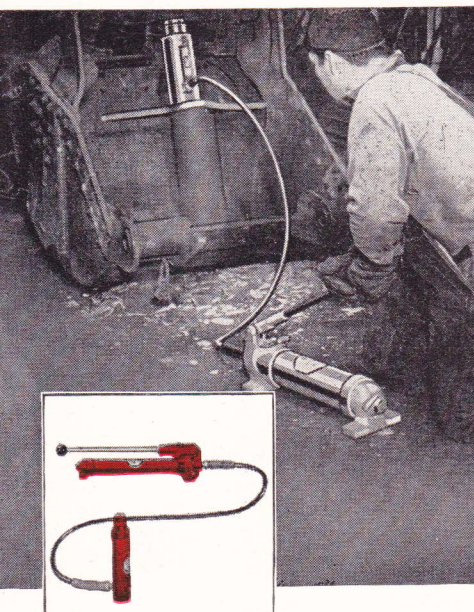
It's easy to pick "the right jack for the job" from this full line of mighty powerhouses. It's the line that leads 'em all! Most dependable!



GAUGE-EQUIPPED HYDRAULIC JACKS

Pages
6, 22, 23

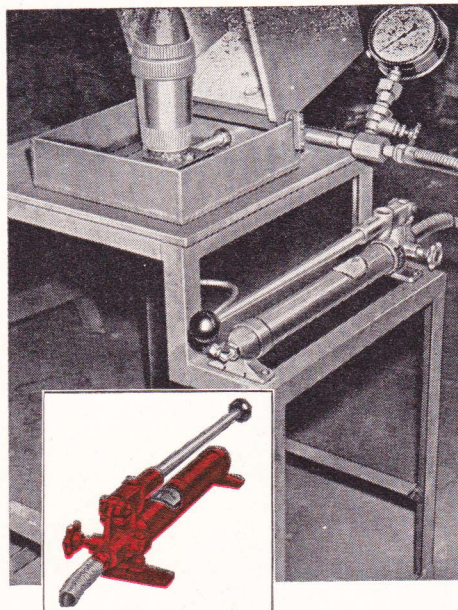
Blackhawk Gauges, Gauge Adaptors, Fittings and Valves make your jack and Porto-Power highly efficient, versatile testing tools.



PORTO-POWER JACKS

Page
9

Famous remotely-controlled Jacks consisting of Pump, Hose, Spec-D-Coupler and Ram in capacities of 4, 7, 10, 20, 50 tons.



PORTO-POWER HAND OPERATED PUMPS

Page
11

These efficient pumps create 8,650; 10,000; 40,000 p.s.i. with easy strokes. Compact, low-cost! They withstand rough, continuous use.



PORTO-POWER MOTOR- DRIVEN PUMPS

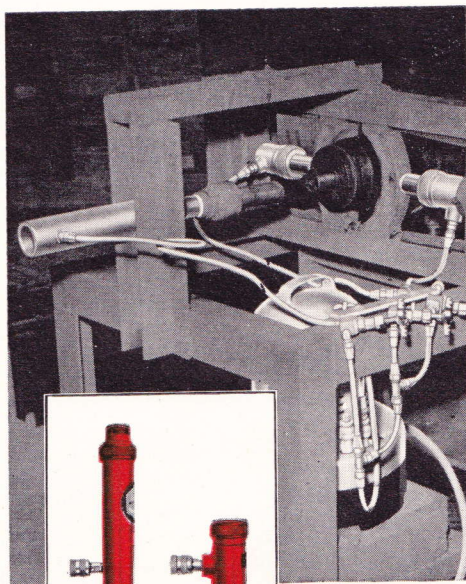
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12

Combining electric motor, valves, pump and oil reservoir in one compact unit ready to create 5,000 to 10,000 p.s.i. for fast operation.

of **BLACKHAWK** maintenance, testing

TOOLS

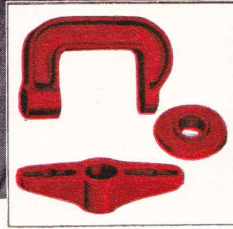
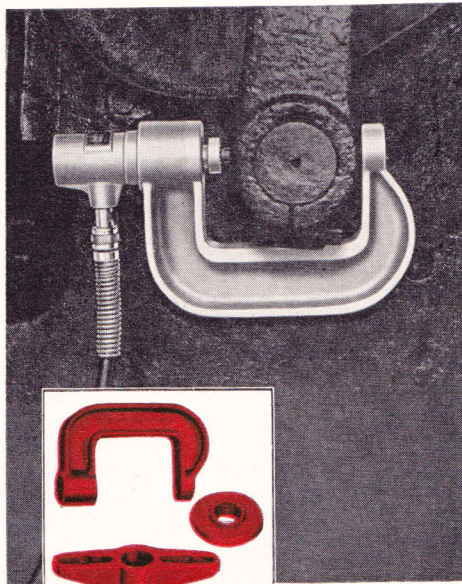
Remotely-controlled Hydraulic Porto-Power Jacks—pages 9 to 23



PORTO-POWER RAMS (CYLINDERS)

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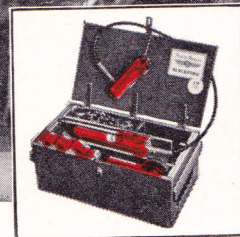
In a complete line of 2, 4, 7, 10, 20 and 50-ton capacities! Special Short, Spread, Hollow and Pull Rams fill special needs.



PORTO-POWER ATTACHMENTS

**Pages
14-15**

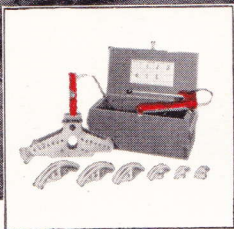
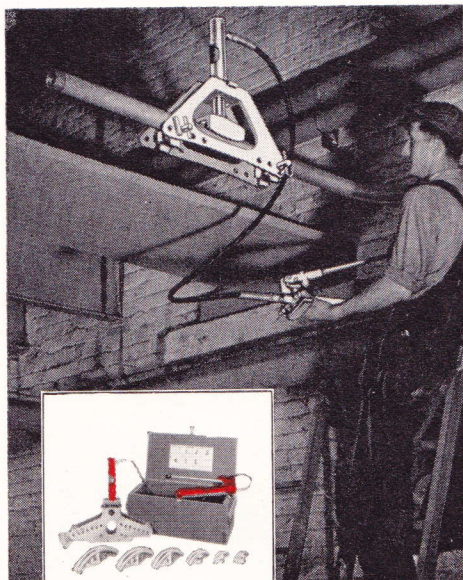
Thread to 2, 4, 7, 10, 20 and 50-ton Rams to harness hydraulic force for pushing, pulling, lifting, pressing, spreading and clamping.



PORTO-POWER MAINTENANCE SETS

**Pages
16-17**

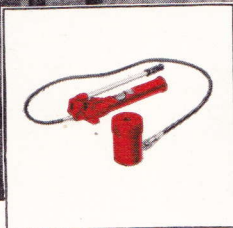
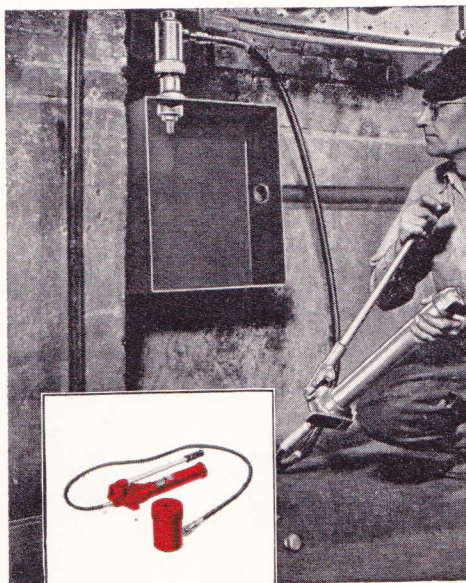
Complete with Porto-Power Jacks and Attachments offering 1001 ways to lick those tough maintenance, operation headaches!



ELECTRICIANS' PIPE BENDERS

**Pages
18-19**

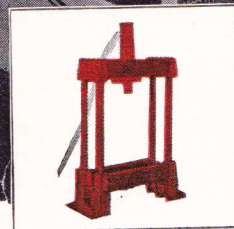
Bend thin-wall conduit from 1/4" to 2" diameters; rigid pipe from 1" to 4"! Handiest Bender—portable, accurate, fast operating!



ELECTRICIANS' KNOCK- OUT PUNCHES

**Page
20**

Hydraulic force punches neat openings for 1/2" to 4" diameter conduit in distribution boxes. It's 60% faster than manual methods.



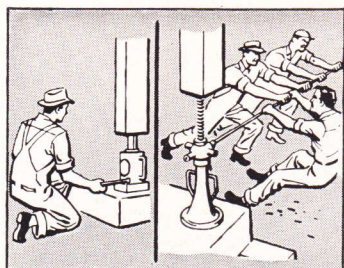
HYDRAULIC PRESSES

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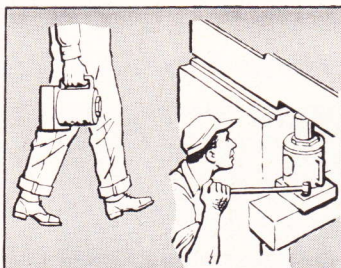
Versatile, low-cost presses for production, maintenance and testing! 10-ton press! Free Blueprints to build your own presses.

BLACKHAWK® Hydraulic Jacks

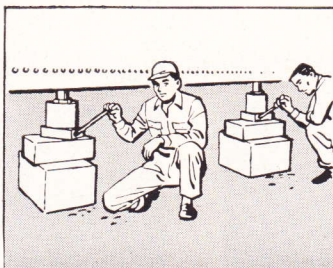
Select from this Complete Line—A
Blackhawk Hydraulic Power Pays Off



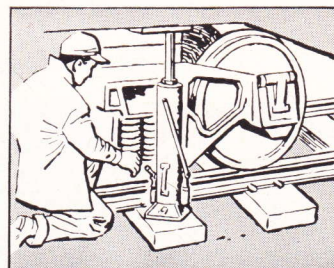
More Efficient! Blackhawk Hydraulic Jacks are all one man operated, are 94% efficient as compared with only 12% to 30% efficiency for mechanical jacks.



Easily Carried and Positioned! Lightweight, compact Blackhawk Jacks have short handles, work easily in constricted areas. No long leverage necessary!

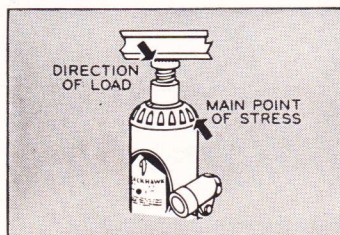


Precision Lowering Control! A Blackhawk Jack lowers slowly and accurately and can be controlled to 1/1000 of an inch! No turning down, no crashing down!



Greater Safety! No dogs or teeth to shear off—few mechanical wearing parts—no accidental lowering! Blackhawk jacks are built for safety, tested for safety!

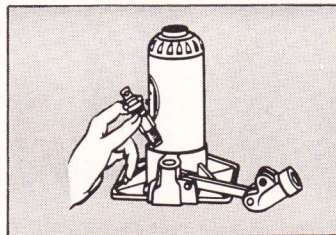
Blackhawk's Exclusive Features Cut Your Jack Costs!



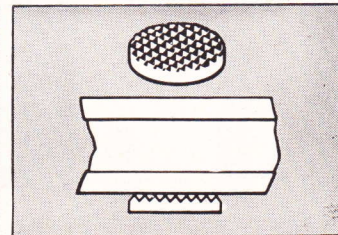
1 Tough malleable iron top cap gives solid rigidity and long life to entire jack, prevents leakage, break-downs.



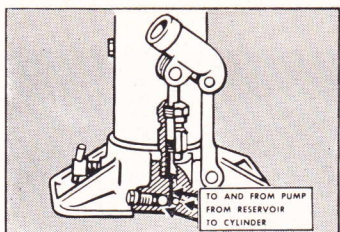
2 Malleable iron pump beam—New, improved, over-sized to withstand tough abuse, sudden strains.



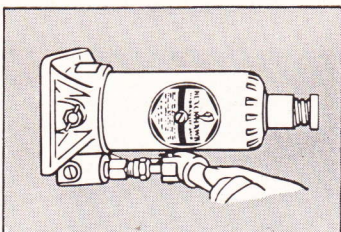
3 Pump easily replaced in field with inexpensive pump assembly. 68% of jack parts are interchangeable!



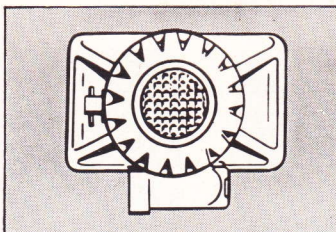
4 Cross-milled serrated saddle heat-treated, with teeth permanently sharp as a hounds tooth, grips load.



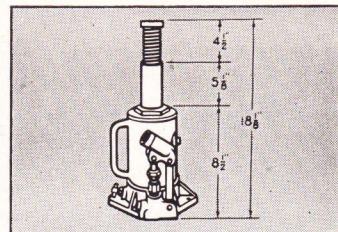
5 Easy maintenance! All valves under one cap screw for easy, on-the-spot cleaning. No dismantling!



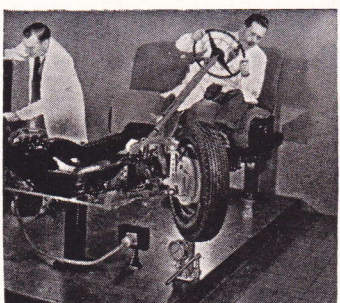
6 Full power on the side! Blackhawk originated pump-on-side feature; extra utility for pushing operations!



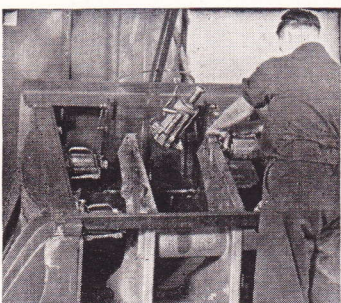
7 Tip prevention—Plunger, located in jack center, distributes load evenly over strong sled-type base.



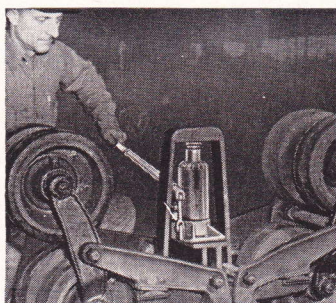
8 New lifting range! Greater plunger travel, longer screw extension! Jacks lift higher, extend farther.



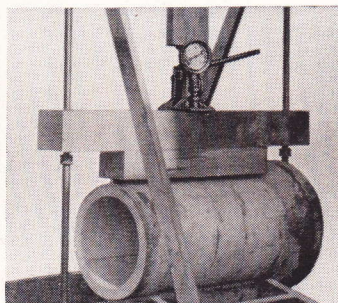
Car manufacturer relies on service-proven Blackhawk Jack for conducting front end stress tests. Gauge registers pressure.



Blackhawk Jacks, used in fixture, have the stamina to stand up in hour-after-hour straightening operation of heavy welded sections.



Highly efficient Blackhawk Jack saves 18 manhours per job compressing volute springs—replaces bulky, time-wasting screw clamps.



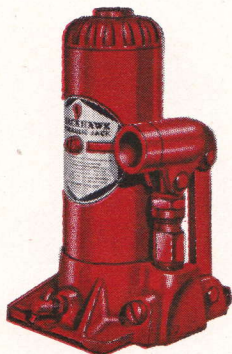
Here's a fast low-cost method to test concrete culvert! Gauge-equipped CB-9 in fixture subjects pipe to pre-determined loads.

Out-live, Out-perform All Others!

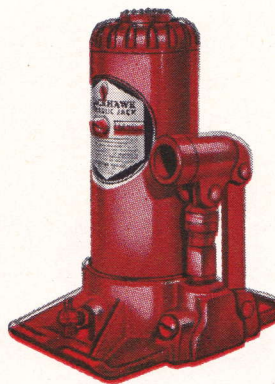
Jack for Every Job—1½ thru 100 tons!



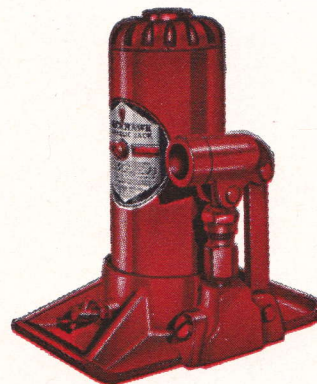
TC-7



BA-8.5



AA-8.5



CB-9

1½-ton TC-7 New low-cost design! An entirely new jack! Built with same proven principles of higher capacity Blackhawk Jacks! Ideal for all light shop work! Lifts light machinery, material handling and fork-lift trucks, cars, pick-up trucks.

3-ton BA-8.5 Here is the jack maintenance men use for general shop work, smaller repair and lifting jobs such as pressing together of parts for assembling, welding.

5-ton AA-8.5 Strong medium duty lifter! The right jack for the plant for straightening parts and structures, moving machinery. Famous for dependable service and wide safety margin.

8-ton CB-9 * Full 16,000 lb. capacity for heavier shop work. Compresses springs, tests welded sections, moves machinery. Most popular model with mechanics and maintenance men.

**Order Model CG-9 if you want to install gauge.*

Hand Jack Specifications

Model	Cap. Tons	Low Hgt.	Hyd. Lift	Screw Ext.	Total Hgt.	Eff. Ram Area (internal) sq. in.	Ram Plunger Dia. Inches	Base Size Overall	Can be Gauge Equipped	Hdle. No.	Hdle. Lgth.	Wgt. Lbs.
TC-7	1½	7"	5 3/8"	2 1/8"	14 1/4"	0.694	0.875	3 5/8 x 5"	no	H-8	22"	7 1/2
BA-8.5	3	8 1/2"	5 7/8"	3 3/8"	18"	1.231	1.125	3 5/8 x 5 1/2"	no	H-12	21"	13
AA-8.5	5	9"	6 1/4"	4 1/2"	19 3/4"	1.872	1.500	4 1/8 x 6 3/4"	no	H-12	21"	16 1/4
CB-9	8	9"	6 1/4"	4 1/2"	19 3/4"	1.872	1.500	4 1/8 x 7 3/4"	*	H-12	21"	19 3/4

**Order Model CG-9 if you want to install gauge.*

See page 6-7
for Heavy-Duty
Blackhawk Jacks
12 thru 100 tons



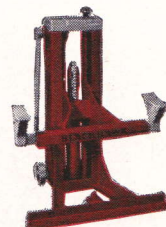
Wheeled and Bumper Jacks for Maintaining Car, Truck Fleets, Wheeled Equipment, and Special Purpose Applications!

BUMPER JACKS are widely used for fleet maintenance, special industrial and production applications. New "Service Chief" one-end bumper jack is built like a lift truck. It's the fastest, most practical jack ever designed to lift cars and light trucks.

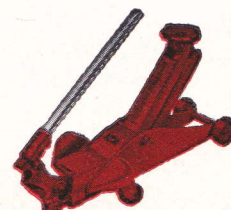
WHEELED JACKS combine lifting and moving into one easy one-man operation. Used on assembly lines for holding heavy parts in position, etc.



S-4



SJ-25



S-23

See catalog pages J-101 and J-101F for complete information on all Blackhawk wheeled and bumper jacks.

Wheeled Jack Specifications

Model	Cap. Tons	Low Saddle Hgt.	Hyd. Lift	Max. Saddle Hgt.	Max. Frame Hgt.	Saddle Size	Chassis Lgth.	Hdle. Lgth.	Over-all Lgth.	Wgt. Lbs.
S-17	1½	35 1/2"	15"	18 5/8"	6 1/8"	3 5/8 x 4 3/8"	35"	42 1/2"	74"	75
S-23	1½	35 1/2"	15"	18 5/8"	6 1/8"	5" dia.	35"	42 1/2"	74"	81
SJ-18	2	37 3/8"	16 1/8"	20"	5 3/8"	5" dia.	40"	47"	87"	105
S-4	4	34"	20 3/4"	24"	6 1/2"	4 1/2 x 6 3/4"	49"	44"	93"	190

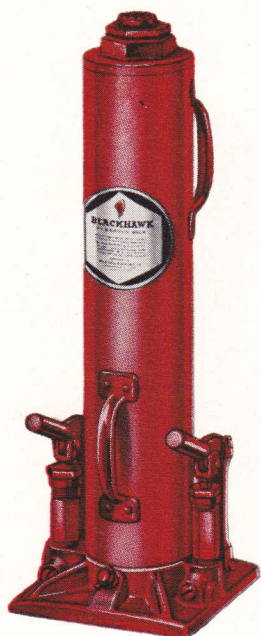
Bumper Jack Specifications

Model	Cap. Tons	Low Hgt.	Hyd. Lift	Low Toe Hgt.	High Toe Hgt.	Max. Hgt.	Handle No.	Wgt. Lbs.
J-17	1½	29 1/2"	18"	5"	26"	44"	P208.70A	38
J-19	1½	21 1/8"	19"	3 7/8"	33 1/2"	40 1/8"	H-9	17
SJ-25	1½	8"	22 3/4"	—	—	30 3/4"	—	159

Special Purpose
Jacks lick those
"Special" Jobs!

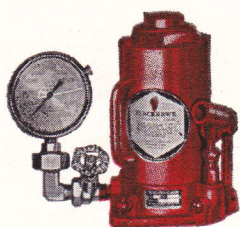
First Choice in

Here's the Line that leads 'em all!



20-ton EA-27
"High-Lift" Jack

This jack is 27" high, lifts 22½" to an extended height of 48½"! Perfect for pulling well casings; rigging oil fields; constructing bridges; maintaining railroad cars, airplanes, mines, tunnels and plants! Simple, convenient double pumps—speed pump for quick saddle-to-load contact—power pump raises load smoothly. One man operated.



**Gauge-Equipped
Jacks**

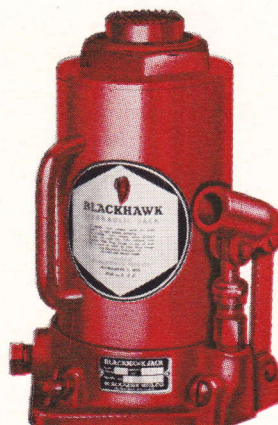
Illustration above shows how gauge and auxiliary equipment mount on jack. If gauge and Jack are to be assembled at factory, specify order as such plus auxiliary equipment needed. If gauge is to be assembled in field, specify jack model number so gauge will come equipped with proper fittings. See page 22 for listing of gauges, gauge adaptors.



12-ton D-8.7 *

A modern, compact power unit for rugged work! Favored for its low height of only 8½"—lifts all the way up to 18½" with screw extension. Widely used as one of the key jacks in industry. Popular in construction for penetration tests of soil, testing building materials. Welded integral handle makes it easy to carry jack.

*Order model D-8.7G if you want to install gauge.



20-ton EA-11

Here is a real performer for hour-after-hour work. Built for heavy maintenance and construction jobs. Positions machines and construction equipment. Presses gear shafts on large engines, bends rail and channel iron. Gauge can be installed in minutes using simple field tools. All features explained on page 20 apply to this jack!

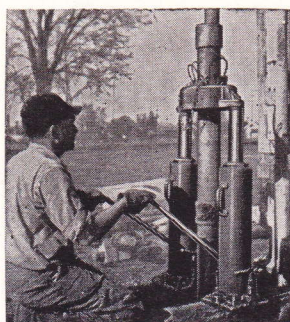


30-ton FA-11

Here is low-cost, extra power for tough jobs. The jack to push large machinery into position; to lift steel bridge sections; to position liners; to compress springs; to repair clamshells, cranes, road building and earth-moving equipment. Preferred for stamina and trouble-free performance. Rugged Blackhawk construction stands up!

Heavy-Duty Jack Specifications

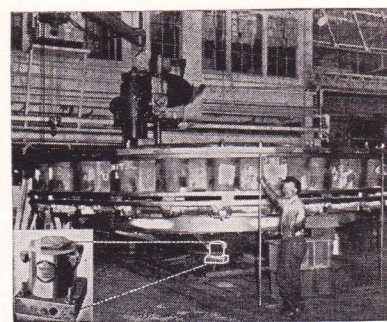
Model	Cap. Tons	Low Hgt.	Hyd. Lift	Screw Ext.	Total Hgt.	Eff. Ram Area (internal) sq. in.	Ram Plunger Dia. Inches	Base Size Overall	Can be Gauge Equip- ped	Hdle. No.	Hdle. Lgth.	Wgt. Lbs.
EA-27	20	27"	22½"	none	49½"	5.157	2.250	8 13/16 x 8 13/16"	yes	3	20"	108
D-8.7	12	8½"	5 5/8"	3½"	17 5/8"	3.281	1.875	5 3/4 x 5 3/4"	*	H-12	21"	24¾
EA-11	20	11½"	6½"	none	17 5/8"	5.157	2.250	6 5/16 x 6 5/16"	yes	H-12	21"	38
FA-11	30	11"	6¼"	none	17¼"	7.980	2.750	7 x 7"	yes	3	20"	65



It takes only one man to pull well casings with two 20-ton "High-Lift" Blackhawk Hand Jacks. It's easy, fast, proved in service!



There is no cracked wall, no ruined plaster, when Blackhawk 50-tonners gradually lift and then lower a brick house on trailer.



A Blackhawk 100-tonner raises and lowers 64-ton giant drilling turntable and huge coverplates for turbine while series of 12-inch holes is drilled. This unusual application won a first prize —\$50.00 in cash—in Blackhawk's Idea Contest. See page 24 for contest rules.

Industry, Construction

These Mighty Power-Houses save Time, save Man Power!



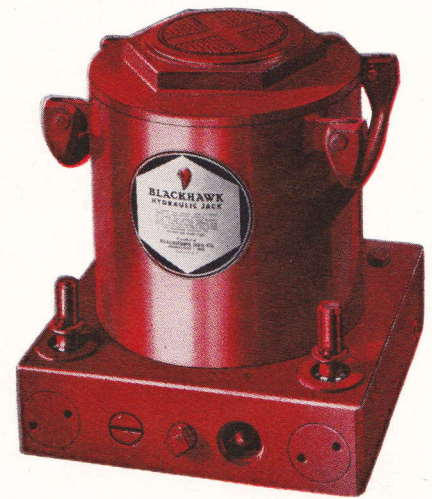
30-ton **FB-11**

This compact de luxe power package saves time and man power for heavy-duty operations in construction, in mines, mills, factories! It's a precision tool for testing! This powerhouse offers the exclusive, *combined* speed and power pump which quickly raises the saddle to load contact, then automatically shifts to power speed for smooth, easy lifting. One piece solid steel machined base insures utmost strength, safety and dependability, protects pump, release valve! Special by-pass valve prevents plunger from going beyond maximum travel.



50-ton **GB-11**

This largest selling 50-tonner on the market has the brute power that really gets the job done, yet is light weight and easily portable. Welded, integral carrying handle offers handy grip and shields vital pump beam from accidental damage. Jack has the same combined speed and power pump as the FB-11 and the same solid steel base. Both jacks have extra large serrated saddles, giving a greater, safer lifting area. All Blackhawk jacks operate in either horizontal or vertical position with same efficiency and safety and allow precision lowering to the thousandth of an inch.



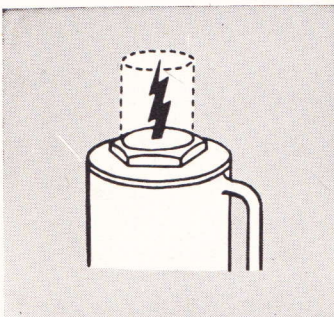
100-ton **N-12**

The best designed 100-tonner built! Compact—rugged—powerful—completely portable. Lifts up to 200,000 lbs., yet weighs only 183 lbs.—considerably less than any other unit of similar power rating. *One-piece*, forged alloy steel base and cylinder gives strength, rigidity and non-leakage. Automatically adjusting packing gland nut eliminates leakage under heaviest pressure. Bronze rollers and guides on separate speed and power pumps allow pumping with less effort. By-pass valve prevents plunger from over-extending. N-12 has convenient drop-handles. Most dependable jack built!

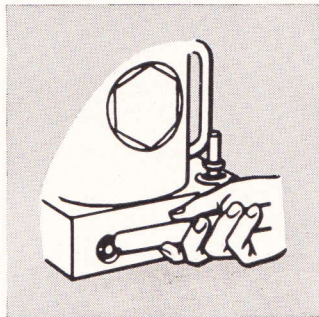
Heavy-Duty Jack Specifications

Model	Cap. Tons	Low Hgt.	Hyd. Lift	Screw Ext.	Total Hgt.	Eff. Ram Area (internal) sq. in.	Ram Plunger Dia. Inches	Base Size Overall	Can be Gauge Equipped	Hdle. No.	Hdle. Lgth.	Wgt. Lbs.
FB-11	30	11"	6"	none	17"	7.980	2.750	7 ⁵ / ₁₆ x 8"	yes	GB-11.70	21"	76
GB-11	50	11"	5 ³ / ₄ "	none	16 ³ / ₄ "	11.045	3.250	8 x 9 ³ / ₄ "	yes	GB-11.70	21"	111
N-12	100	12"	5 ³ / ₄ "	none	17 ³ / ₄ "	15.904	4.000	10 ³ / ₄ x 10 ³ / ₄ "	yes	GB-11.70	21"	183

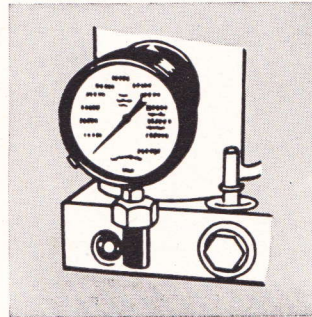
Compact, Rugged, Dependable—the Best Buy in Jacks



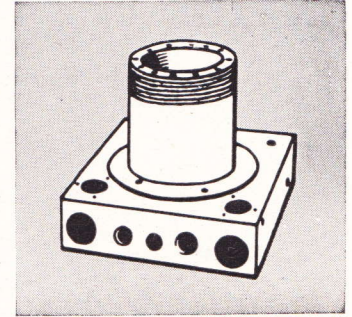
Lightning Lift—for faster, easier operation! Patented double pump quickly contacts load; then power pump cuts in on FB-11 and GB-11.



Protected Pump and Release Valve—vital parts not exposed to rough treatment. No chop-offs of pump, no accidental lowering.



Convenient Gauge Plug—gauge measuring total load or lbs. per square inch can be installed in minutes with normal field tools.



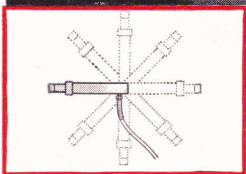
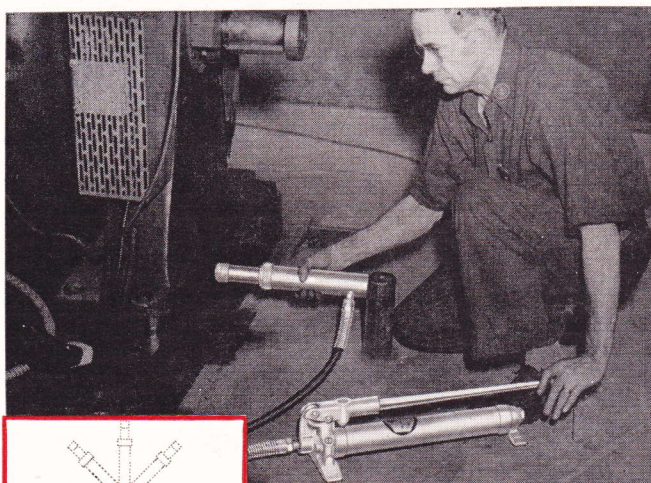
One-Piece Steel Cylinder and Base—gives N-12 utmost strength, rigidity, non-leakage. Years of trouble-free service!

Here is the most versatile remotely-controlled Hydraulic Jack

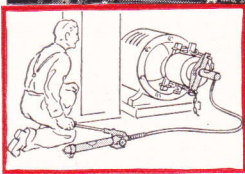
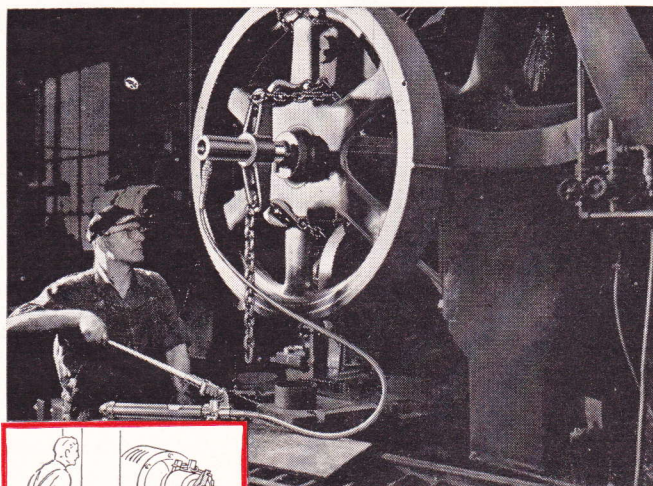
Porto-Power®

a whole family of tools — pumps, rams, valves, presses, spreaders, attachments!

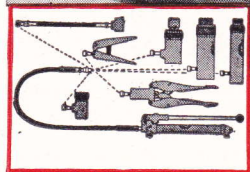
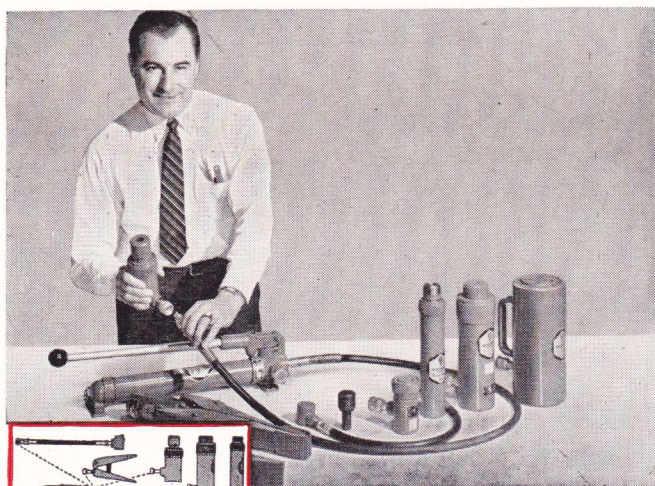
Originated by Blackhawk, Porto-Power is no ordinary hydraulic jack. It's remotely-controlled, with the pump separated from the ram by a long flexible hose. Users can exert power in any direction at any angle and do a lot more than lift! Rams are threaded to connect to ingeniously designed attachments to push, pull, lift, press, bend, spread and clamp. Individual Porto-Power components or whole units can also be built right into your own production fixtures, jigs and machines. That's why Porto-Power jacks are so widely used throughout Industrial, Construction, Electrical, Mining, Marine, Aviation, Oil and other fields to conserve valuable manpower.



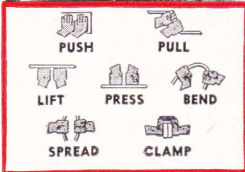
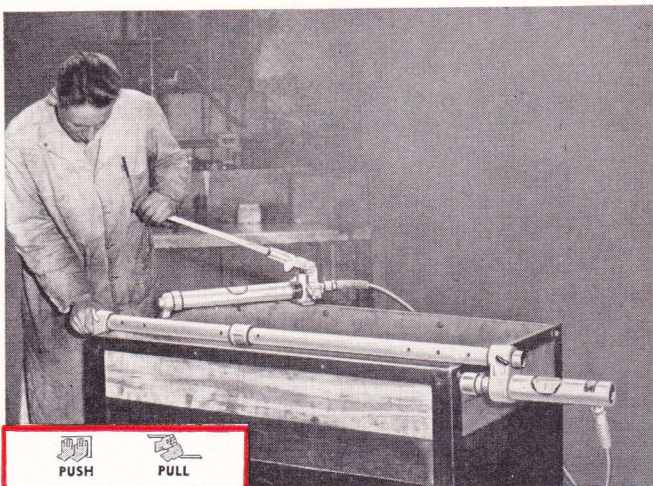
ALL DIRECTIONAL—Rams exert full power in any direction, at any angle exactly where you need it; whether you position a machine or power a fixture.



REMOTE CONTROL—All controls are separated from ram by long flexible hose. Operate from safe distance! Better "sighting" of job, precise control!



EXCLUSIVE SPEED-COUPLER—You need only one low-cost Pump and Hose to power seven different Rams! Quick switch of rams takes only five seconds!



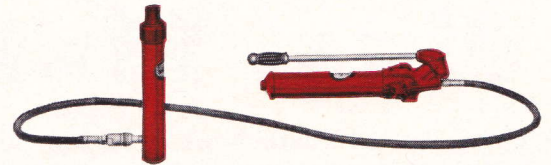
COVERS FULL WORK RANGE—With ingeniously designed attachments Porto-Power applies force as the human hand does, but with tons of hydraulic power.

Porto-Power® Jacks

These hydraulic jacks make the maintenance man a miracle worker . . . Prevent costly shut-downs . . . Solve production problems the easy way . . . Conserve valuable manpower . . . Yes, sir, these jacks do everything but walk and talk!

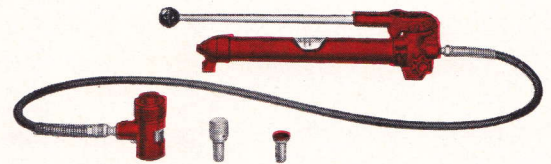
4-TON SA-50

For light maintenance jobs and production jigs and fixtures, you can't beat the SA-50. It's compact, low-cost, lightweight! It'll push, pull, clamp, spread and bend when used with 4-ton attachments (see page 10). Consists of new P-400 Pump, new RC-540 "Retracto" Push Ram and Z-864 6-ft. flexible Ban-tam Hose, complete with Spee-D-Coupler.



7-TON S-76

This jack works in tight, restricted areas where other jacks just won't fit. Developing 7 tons, the RC-75 "Shorty" ram is only 4½" high—lifts 2½"! S-76 has tremendous versatility with 10-ton Attachments (see page 15). Includes P-76 Pump; RC-75 Ram with R-75.38 Adaptor for 10-ton Attachments and R-75.45A Serrated Saddle; plus Z-913 flexible Hose and Spee-D-Coupler.

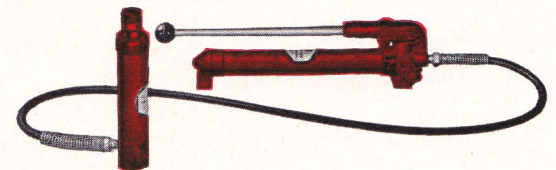


10-TON S-71

NEW

So inexpensive, yet so valuable. That's what men in industry say about this remote controlled jack. Provides 1001 money-saving short-cuts, whether it's solving maintenance problems, operation head-aches or testing tasks. Powers all 10-ton attachments (see page 15) and is used in Porto-Power maintenance sets (pages 16, 17) and in S-34 Pipe Bender (page 18). Consists of P-76 Pump, RC-159 Ram, Z-913 6-ft. hose and Spee-D-Coupler.

S-72 is the same as the S-71 but has RC-160 "long-stroke" ram instead of the RC-159.

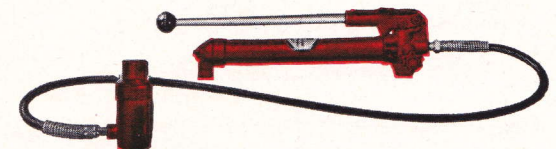


10-TON (Hollow Ram) SB-43

NEW

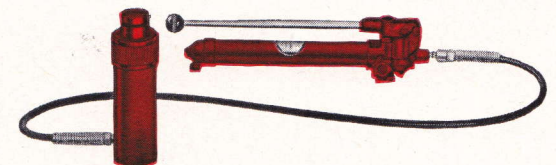
Here is the reliable answer to those specialized pulling problems that require a hollow ram. The SB-43, while used primarily with electrician's knock-out punches (see page 20), will also do a wide range of pulling jobs. Pull rods go through center hole of ram. Consists of P-76 Pump, RC-426 Ram, Z-913 6-ft. flexible hose and exclusive Spee-D-Coupler.

SB-70 NEW Hydraulic Knock-Out Unit develops 12 tons of power! Will also do a wide range of pulling jobs. Consists of P-400 pump, new RC-112 ram, Z-864 flexible hose with swiveling Spee-D-Coupler.



20-TON S-78

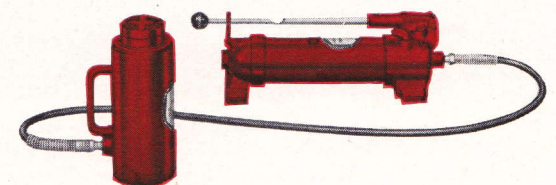
Prevents shut-downs on those big machines—speeds up repairs where needed—that's the 20-ton S-78 Jack. Works in any position and can push, pull, spread, or bend when used with 20-ton attachments (page 15). It's also the quick answer when big power is required on production presses, jigs and fixtures. Consists of P-76 Pump, RC-251 Ram, Z-913 flexible 6-ft. hose and swiveling Spee-D-Coupler.



50-TON S-80

Lifts 100,000 lbs., yet weighs only 114 lbs.—light enough for one man to carry from job-to-job. This 50-tonner is the real work-horse of maintenance crews! Positions heavy machinery—pushes pipe—pre-stresses concrete—straightens beams! Triple selector valve regulates pumping speed for 15, 25 and 50-ton loads for easiest, most efficient operation. Consists of P-85 Pump, RC-210 Ram, Z-913 6-ft. flexible hose and exclusive Spee-D-Coupler.

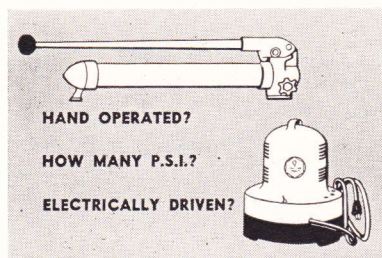
S-82 Porto-Power jack has same components as S-80 plus Z-302 Wedge and Z-303 "V" saddles.



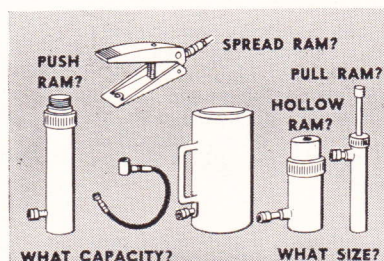
For detailed information see page 11 on pumps, page 13 on rams, page 23 on Spee-D-Couplers and Hoses. For faster operation, motor-driven pumps can be used instead of hand-operated pumps. See page 12!

How to Choose **Porto-Power** Components to Build Your Own Jigs, Fixtures, Presses

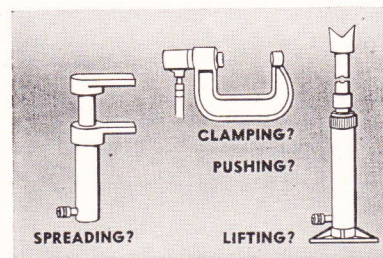
Powering jigs and fixtures is one of the most important industrial applications of Porto-Power. Low-cost standard Porto-Power components can be used for building cost-cutting jigs, fixtures, presses! With Porto-Power, hydraulic force takes over the time consuming, inefficient manual operations to cut production costs. No expensive engineering is necessary. All Porto-Power components are stock models; they're readily available everywhere at leading industrial distributors.



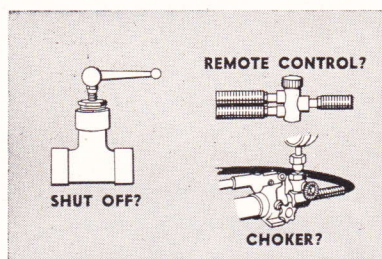
1 THE PUMP—What pressure does your hydraulic system require? Porto-Power Pumps create 8,650; 10,000; and 40,000 p.s.i. Low-cost, rugged, compact and long lived!



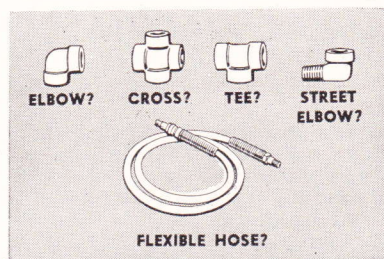
2 THE RAMS—Does your operation require push ram, pull ram, hydraulic spreader? What stroke? Capacities of Porto-Power Rams range from 2 through 50 tons.



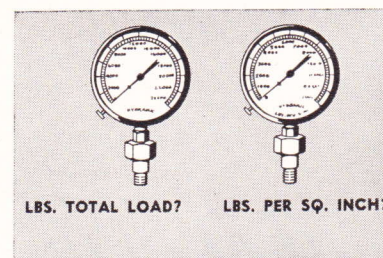
3 THE ATTACHMENTS—Utilize Attachments in your hydraulic system for lengthening rams, for providing special heads on ram plungers, 1001 other applications.



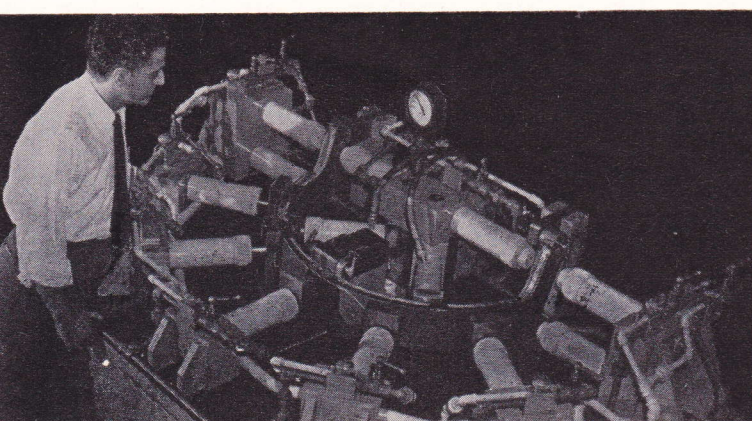
4 THE VALVES—If your hydraulic system requires control at various points other than the pump, use job-engineered Blackhawk Shut-Off or Remote Control Valves.



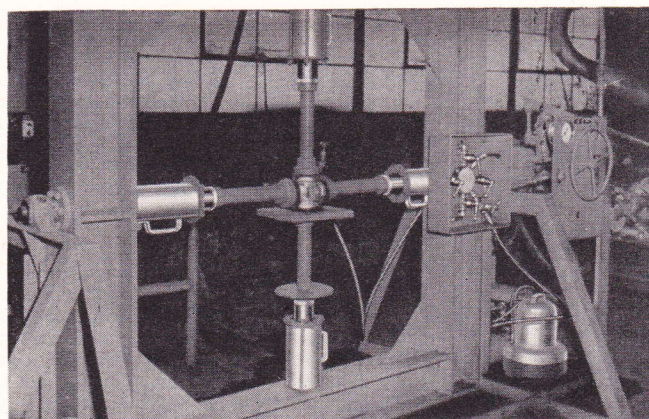
5 THE FITTINGS—Use these tested high-pressure Blackhawk Fittings and steel tubing to make Porto-Power installations more adaptable to your specific requirements.



6 THE GAUGES—Blackhawk Gauges measure Lbs. per Square Inch or Lbs. Total Load. Available complete with Adaptors, Choker Valves, Maximum Indicating Pointers.



Aircraft manufacturer saves thousands of dollars every week with this jet-engine straightening fixture which turns out several times as much work as old fixture with less manpower. Tool engineers designed this device to serve not only as press but as line-up gauge as well. The whole fixture is powered by thirteen 20-ton Porto-Power rams and motor-driven Porto-Power pump with auxiliary oil reservoir.



Valve manufacturer reports that this shop-made valve testing fixture increased production 100%. Four 50-ton Porto-Power rams, powered by a motor-driven pump, exert pressure to seal openings of rough casting while water is injected under pressure. This operation was slow and dangerous before Porto-Power was installed. This new idea won a cash prize, the Second Grand Award for the second quarter, 1953, in Blackhawk's Idea Contest. See page 24 for rules.

Porto-Power Hand Pumps

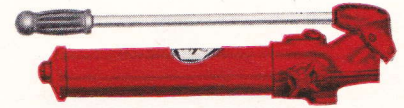
Low-Cost, Compact, Pressure Ranges to 40,000 p.s.i.

Here is a full line of really low-cost hydraulic hand operated pumps in a variety of pressure ratings and oil capacities. Add to your present Porto-Power equipment or use these dependable, compact pumps to power your shop-built hydraulic systems! Efficient Porto-Power pumps withstand rough, continuous use, work under the most rugged conditions. They are built and tested to last a lifetime!

P-400

8,650 p.s.i.

New design to power Blackhawk's new RC-540 and RC-640 rams, plus RC-618, SA-6 and SA-7. Large "free-flowing" oil channels, longer reservoir with larger oil and air capacity, and larger filter screens assure dependable, year-in, year-out service. Large diameter pump piston speeds ram travel—precision controlled by handy release valve. Short 14 $\frac{3}{8}$ " length is ideal for building into production fixtures. Develops full 8,650 p.s.i.



P-76

10,000 p.s.i.

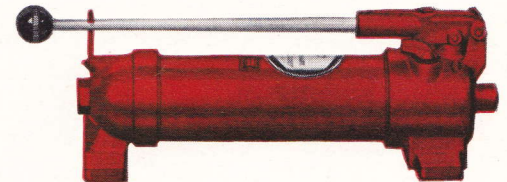
This light-weight, low-cost, really portable pump powers 7 different Porto-Power Rams—RC-159, RC-251, RC-75, RC-426, RC-263, SA-7 and SA-4—to handle a broad range of work in industrial maintenance and production, construction and testing. With its compact design, it's excellent as power unit for hydraulic systems requiring up to 10,000 p.s.i. New, improved chevrons insure longer life. Base pads allow mounting everywhere!



P-85

10,000 p.s.i.

Powers RC-210 50-ton ram for lifting giant loads. Extra large oil reservoir—full 145 cu. in. capacity—enables this pump to power special hydraulic systems, requiring larger oil volumes. P-85 will also power multiple hook-ups. Works in any position. Hook locks handle for carrying.

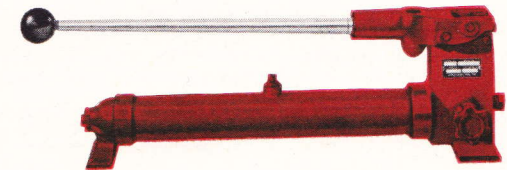


P-228

40,000 p.s.i.

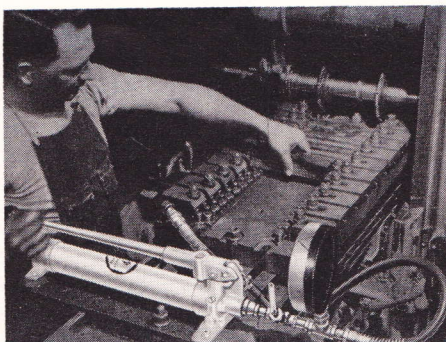
Here is the really low-cost answer to requirements for an extremely high pressure pump. Develops 40,000 p.s.i. for specialized laboratory testing; removal of bearings from pre-drilled shafts (oil-injection method) and for special hydraulic systems. Very compact, extra strong construction with rugged one piece steel head and long, over-lapped piston stroke to prevent leakage. Long lived!

P-228 pump can not be used with Porto-Power Rams, Hoses and Attachments as soon as pressure created exceeds 10,000 p.s.i.

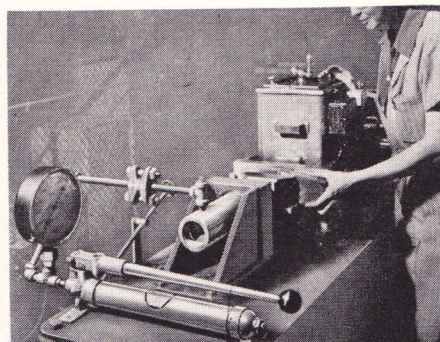


SPECIFICATIONS OF PORTO-POWER PUMPS

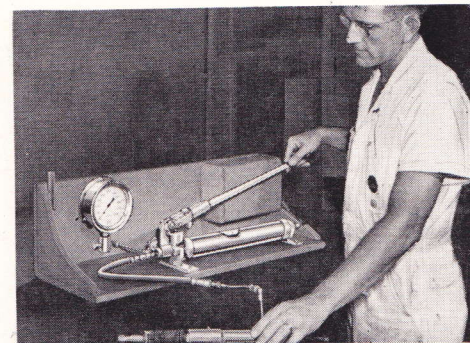
Pump Model	Oil Capacity, cu. in.	P.S.I.	Pump Plunger Area	Pump Plunger Dia.	Pump Plunger Stroke	Pump Plunger Displacement, cu. in.	Hose Outlet Thread	Overall Length	Handle Length
P-400	13.5	8,650	.110	3/8"	7/16"	.0621	1/4"	14 $\frac{5}{16}$ "	12 $\frac{3}{4}$ "
P-76	43	10,000	.1964	1/2"	13/16"	.1595	3/8"	20 $\frac{1}{8}$ "	18 $\frac{3}{4}$ "
P-85	145	10,000	S .1503 L .4418	S 7/16" L 3/4"	1"	15 ton .442 25 ton .29 50 ton .15	3/8"	20 $\frac{1}{4}$ "	18 $\frac{3}{4}$ "
P-228	43	40,000	.049	1/4"	1/2"	.0245	3/8"	20 $\frac{1}{2}$ "	18 $\frac{3}{4}$ "



Tightening of 36 bolts was an unsatisfactory, slow process for this milling operation. Now a few strokes on P-76 Pump hold 18 steel bars securely in hydraulic clamping fixture.



Gauge-equipped P-76 exerts precision-controlled pressure on molds used for investment casting of intricately designed airplane turbo chargers with tolerances of 0.0001 inch!



Gauge-equipped Porto-Power Pump proved to be fastest, easiest, and most efficient tool for testing airplane valves. Pressure of oil injected is precision-controlled.

Porto-Power® Motor-Driven Pumps

Provide fast, effortless, dependable power!
Inexpensive, compact, portable!



Speeds of Porto-Power Rams and Number of Rams that can be operated simultaneously by P-182, P-254 or P-255. (Rams, powered by the P-285, travel twice as fast, developing half the rated tonnage).

Ram Model	Plunger Travel	No. of Rams served simultaneously	Speed of one Ram		
			1" Plunger Travel in Seconds	Full Plunger Travel in Minutes	Plunger Travel Per Minute
RC-210	6"	2	25	2 1/2	2.4"
RC-251	5"	5	12	1	5"
RC-159	6"	10	5	1/2	12"
RC-426	2"	20	4.6	1/5	13"
RC-75	2 1/2"	25	4.3	1/6	14"

Porto-Power motor-driven pumps produce a steady flow of power for fast, continuous or intermittent operation of any Porto-Power ram or any hydraulic system requiring up to 10,000 p.s.i. It's one complete, compact unit with motor, pump, valve and oil reservoir all under one hood—ready to work anywhere. A Porto-Power motor-driven pump powers rams to full travel in one third the time it takes with hand pumps. Fingertip control allows effortless operation, cuts job time, eliminates slow-down due to fatigue. Ample oil capacity (231 cu. in.) to operate several rams simultaneously. Relief valve can be adjusted to by-pass oil at pre-determined pressures. Available with casters for rolling pump from job to job. Weight, only 84 lbs.

GENERAL SPECIFICATIONS

Actual oil delivery per minute 26.8 cu. in. at 10,000 p.s.i. Maximum pressure 10,000 p.s.i. for intermittent service, and 5,000 p.s.i. for continuous service.

PUMP: Wobble plate type with four pistons. Piston diameter, 5/32"; piston stroke, 1/4". Displacement per piston, .0047 cu. in.; displacement per revolution, .019 cu. in. Pump speed, 1725 R.P.M. Oil capacity: one gallon (231 cu. in.)

DIMENSIONS: Overall height, 16"; with casters, 18 1/2"; diameter at base, 12 3/4"; net weight, 84 lbs.

RECOMMENDED OIL: Foam-resistant Blackhawk LX-22 has high lubricating qualities necessary for high speeds and pressures.

MOTOR: 1/2 HP; wired at factory for current requirements listed below. High torque, repulsion start, induction run. 1725 R.P.M., ball bearing motor. Equipped with 8-ft., 3-wire cord and two prong plug with ground pigtail.

P-182 Standard Model for 115 Volt A.C., 60 Cycle, Single Phase. Can be connected for 230 volt A.C. by changing motor leads.

P-285 Motor same as P-182. Double displacement pump delivers 53.6 cu. in. per minute for fast operation. Develops 5,000 p.s.i. for intermittent service, 2,500 p.s.i. for continuous service. Rams, powered by this pump will develop half their rated capacity.

P-254 Similar to P-182. Motor wired for 115 Volt D.C.

P-255 Similar to P-182. Motor wired for 230 Volt D.C.

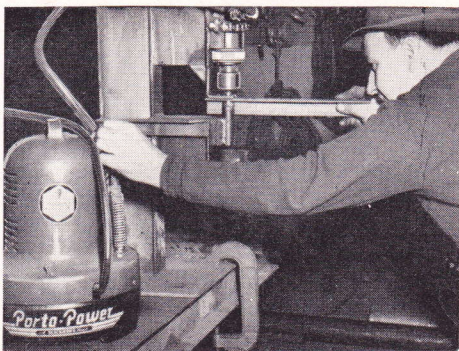
FZ-1631 Castor for motor-driven pump. Order four of these hard rubber, easy swiveling casters for rolling your pump from job to job. Easy to install—pump base is pre-drilled.

Motors for other special Voltages are available on SPECIAL ORDER.

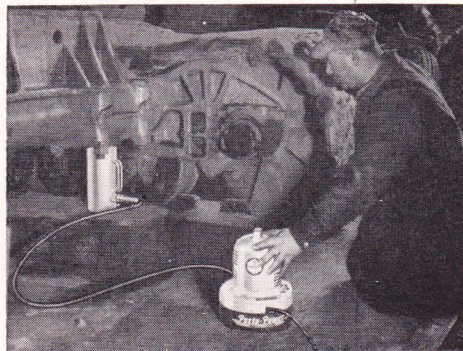
Write Blackhawk Mfg. Co., outlining your requirements.



Manufacturer of electric motors is using a series of motor-driven Porto-Power Pumps and 7-ton "Shorty" rams in this highly efficient, testing set-up to check the concentricity of riser bars on commutators.



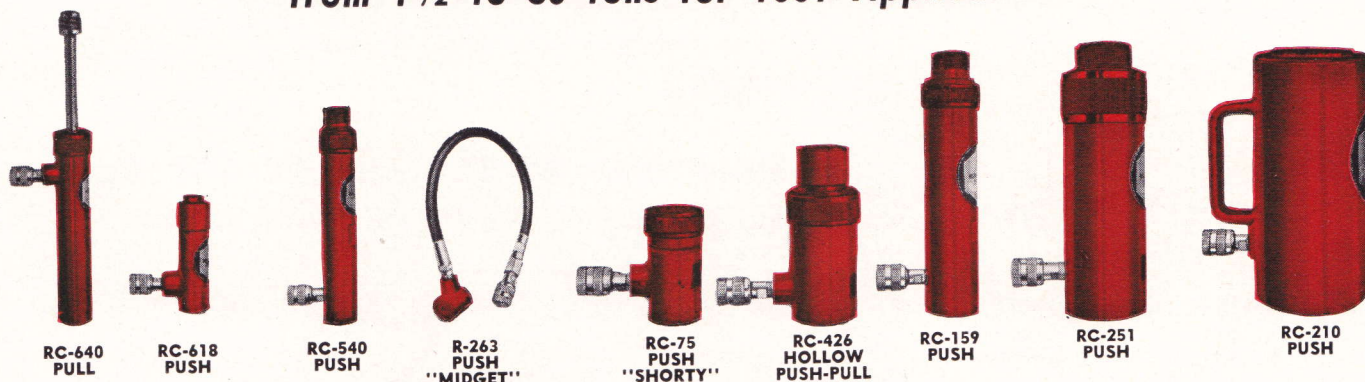
Conveyor manufacturer reports that this electrically-driven Porto-Power Pump and 10-ton RC-426 Hollow Ram on home-made Arbor Press knock out 850 holes in angle iron in 2 1/2 hours while drilling would take 24 hours.



With a flip of a finger this maintenance man turns on his electrically-driven Porto-Power Pump—and in a matter of minutes 50-ton ram lifts giant crane high enough for repairs. Porto-Power multiplies your manpower!

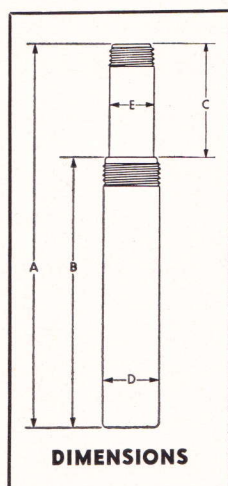
Porto-Power Rams (Cylinders)

Push Rams, Pull Rams, Hollow Rams, Hydraulic Spreaders
from 1½ to 50 tons for 1001 Applications



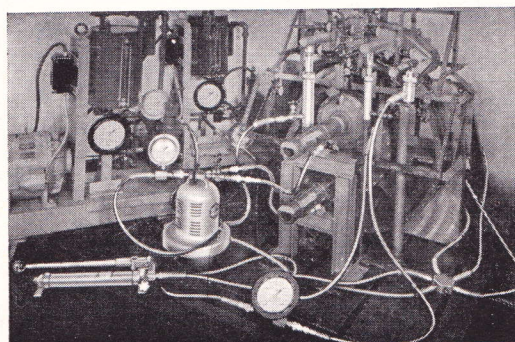
Here is a complete line of standard high-pressure hydraulic rams especially suited for installing into your own hydraulic jigs, fixtures, presses; or to supplement your present Porto-Power equipment to give you a wider range of capacities, lifting heights and ram functions. Compact, lightweight design requires a minimum of mounting space. All Porto-Power Rams are Spee-D-Coupler equipped for quick 5 second switch! You don't have to buy a separate pump and hose for each ram.

Rams are bored out of solid round steel stock and honed to a fine micro finish—no seams, no plugs—no leakage due to porous walls. Packings are individually treated to assure highest sealing efficiency. Superior quality steels, precision manufacturing methods, and design refinements, gained through many years of experience, guarantee long ram life under the most rugged conditions. Only Porto-Power gives you all these sizes and styles of rams and hydraulic spreaders for a full range of work from 4 to 50 tons.



RAM MODEL	RC-640	RC-618	RC-540	RC-112	R-263	RC-75	RC-426	RC-159	RC-160	RC-251	RC-210
TYPE OF RAM	PULL	PUSH	PUSH	HOLLOW PUSH-PULL	PUSH	PUSH	HOLLOW PUSH-PULL	PUSH	PUSH	PUSH	PUSH
Capacity, Tons	2	2	4	12	4	7	10	10	10	20	50
A Extended Hgt.	14½"	9½"	14¾"	6½"	2½"	7"	8½"	17¾"	25½"	16½"	17"
B Collapsed Hgt.	9½"	4¾"	9¾"	4¾"	1½"	4½"	6½"	11¾"	15½"	11½"	11"
C Plunger Travel	5"	3"±	5"	1½"	5/8"	2½"	2"	6"	10"	5"	6"
D Outside Dia.	1½"	1½"	1½"	2¾"	1½"	2½"	2½"	2½"	2½"	3¾"	5"
E Plunger Dia.	¾"	¾"	1"	1¾"	1"	1¾"	1¾"	1½"	1½"	2¼"	3½"
Spring Return	YES	NO	YES	YES	NO	NO	YES	YES	YES	YES	YES
Plunger Thread	¾" PIPE	NONE	¾" PIPE	NONE	NONE	NONE*	1¼" PIPE	1¼" PIPE	1¼" PIPE	2" PIPE	NONE
Collar Thread	1½"—16	NONE	1½"—16	2¾"	NONE	2¼"—14	2¾"—14	2¼"—14	2¼"—14	3½"—12	NONE
Base Thread (Internal)	¾" PIPE	NONE	¾" PIPE	NONE	NONE	NONE	NONE	1¼" PIPE	1¼" PIPE	2" PIPE	NONE
Oil Cap. Cu. In.	2¾	2.36	5	4.49	1	5	5.95	14	22.34	26	67
Effective Ram Area Sq. Inches	.552	.7854	.994	2.7612	.994	1.864	2.973	2.2365	2.234	5.1572	11.045
Weight, Lbs.	3½	1¾	3¾	6½	1	4½	7	10	14½	22¾	60
Operated By Pump	P-400			P-182			P-76				
Use with Hose	Z-864 (Has ZH-630 Male Half Coupler)						Z-913 (Has ZH-604 Male Half Coupler)				

*Ram RC-618 has, in addition to plunger, a 1½" screw extension—which gives it a total height of 9½".
 †A special male adaptor R-75.38A (1¼" Pipe Thread) is included with RC-75 or R-75.
 ‡Dia. of hole through RC-426 Ram—.635".
 All Rams are listed with Ram-Half of Spee-D-Coupler. If Rams are desired without this female Half-Coupler, omit "C" when ordering—for example R-159 denotes Ram only. See page 23 for information when ordering Spee-D-Couplers and Hoses.



Manufacturer of jet engines built this low-cost, highly efficient, very accurate testing stand, powered by a battery of Porto-Power rams and gauge-equipped hand and motor-driven pumps. In this efficient testing method pressures exerted on jet engine drive housing equal actual loads developed when plane is flying.

Porto-Power Spread Rams Fit into Tight Corners

If limited clearance in special applications is your problem, here are Porto-Power Spreaders with the Hydraulic Ram built right into it.



SA-4

SA-6

SA-4 Hydraulic Wedgie used with 10-ton Pump and Hose. Jaws slip into spots with only 3/8" clearance—open to 3¾", close automatically. Wedgie is 2" wide, 6½" long and 2" high.

SA-6 Same Hydraulic Wedgie as SA-4 but equipped with smaller Spee-D-Coupler for Bantam Hose and Pump.



SA-7

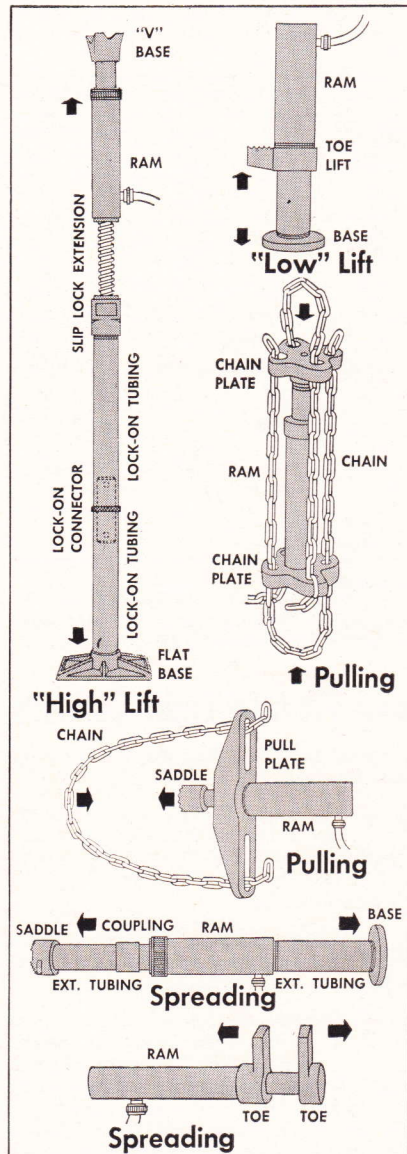
SA-7 Deep-Reach Spread Ram. Tip is 1" wide when jaws are closed; opens to 11¾"! Overall length is 19¼". Spring closes arms automatically when release valve is opened. Use with Bantam or 10-ton Pump and Hose. When ordering specify Spee-D-Coupler you need. (See page 23).

Porto-Power® Attachments



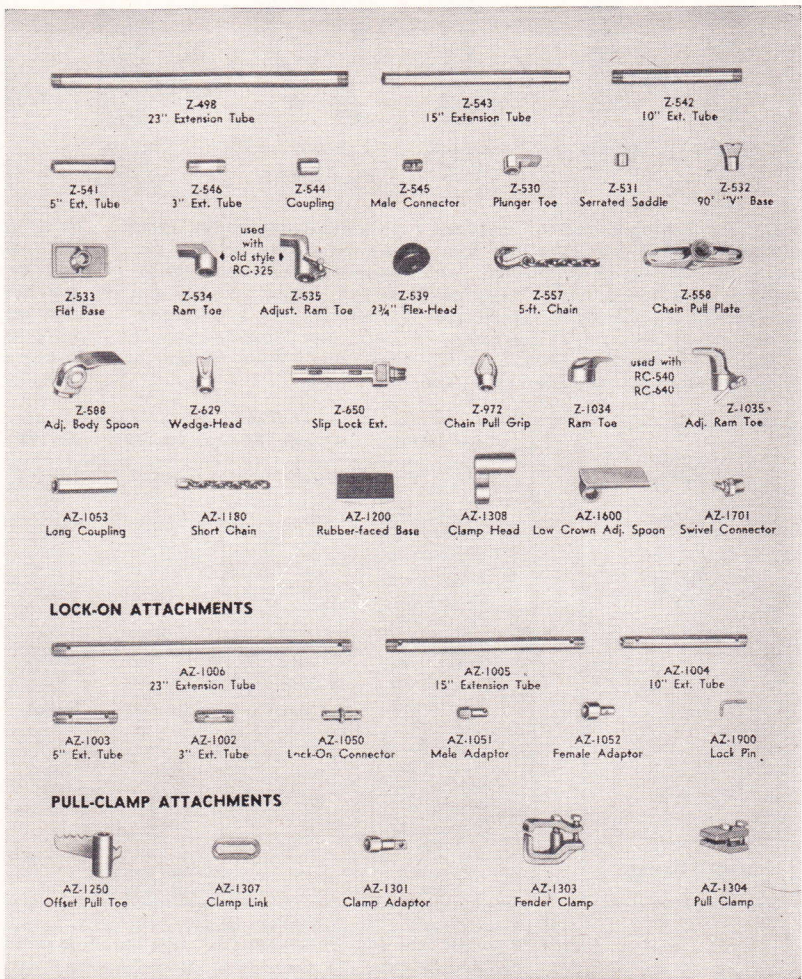
HOOK-UPS ARE EASY TO MAKE!

Most Porto-Power Rams are threaded at plunger top, ram collar, and ram base allowing you to make up hundreds of practical working combinations. To drastically reduce assembly time, use new Lock-On Tubing and Attachments! Below are just a few examples of the 1001 combinations you can make to push, pull, lift, press, bend, spread, clamp:

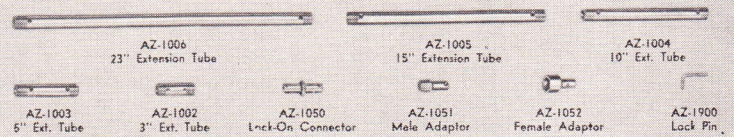


Porto-Power is the only hydraulic jack line that offers you all these ingeniously designed attachments to lick your tough repair, production and testing problems! This great family of field-tested attachments, has been developed over many years to meet specific problems posed by Porto-Power users. Each attachment is precision engineered, manufactured from highest quality materials, guaranteeing complete dependability.

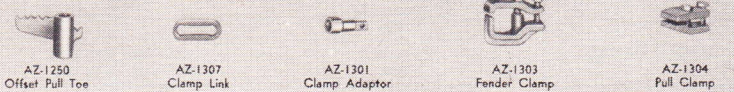
Used with RC-540 and RC-640 Rams *



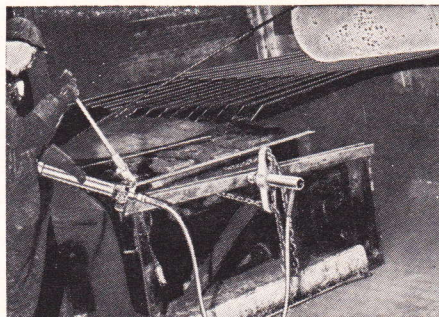
LOCK-ON ATTACHMENTS



PULL-CLAMP ATTACHMENTS







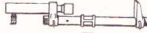



*Attachments can also be used with old style RC-325 and RC-612 rams.



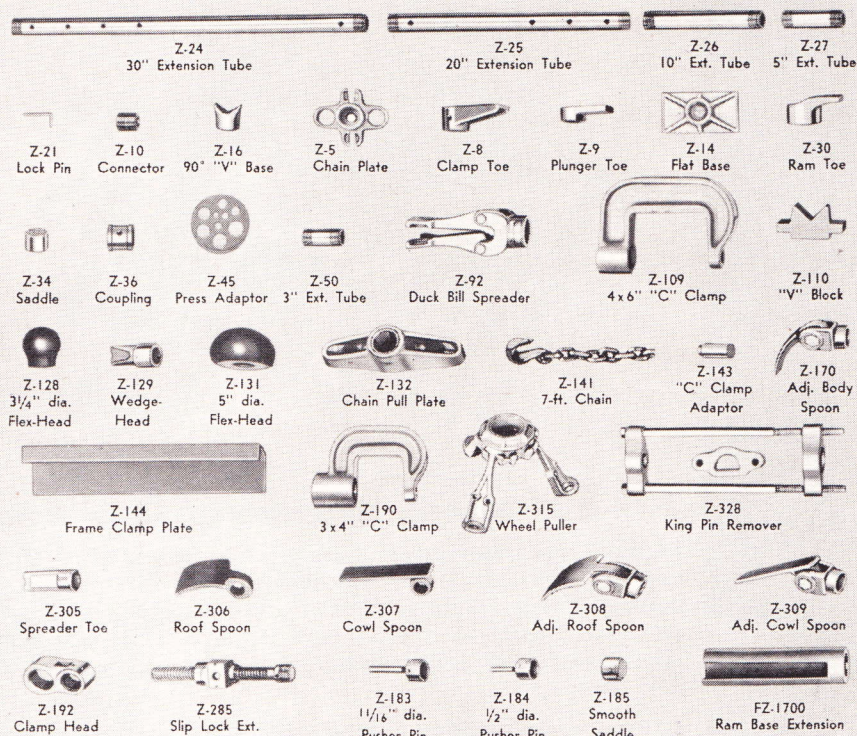
No stopping of the production line here! Maintenance man uses Porto-Power to straighten conveyor drive shaft without stopping flow of white-hot metal containers.



There's no limit to Porto-Power's lifting heights! 10-ton Ram with extension tubes reaches 14 feet to support shaft. No other type of jack could have done this job!

Porto-Power Attachments assemble into countless combinations providing valuable short-cuts to easier, more efficient work, for a "Toe Lift," like this  or a "Top Lift"  Pulling is done this way  Clamping is handled in one of two methods . . . for short spans  . . . and for long spans  Pushing and spreading are simple.  And "Porto-Power" is a natural for this portable press setup  or in a stationary press 

Used with RC-159, RC-75 and RC-426 Rams

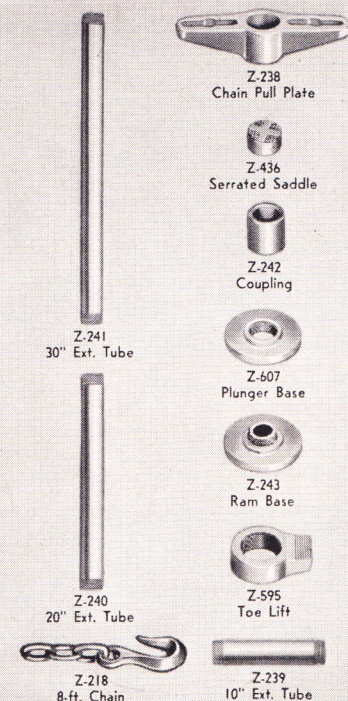


LOCK-ON ATTACHMENTS

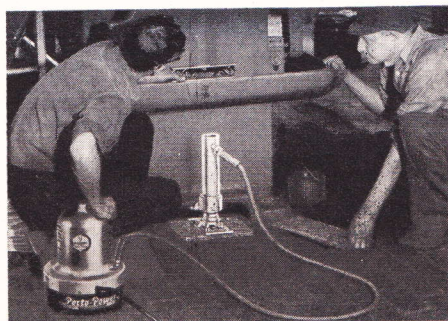
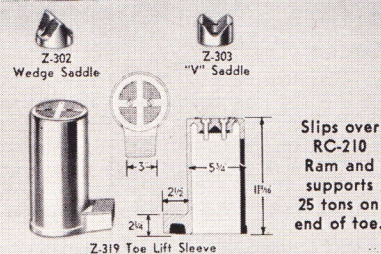
PULL-CLAMP ATTACHMENTS



Used with RC-251



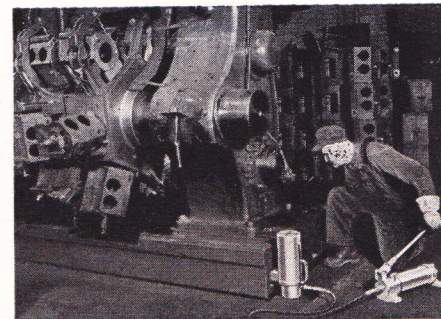
Used with RC-210



No man-wasting, back breaking crowbar methods! This 10-ton Ram, Base Plate and Toe-Lift Attachments lift from a low height of only 2" for positioning screw machine.



No long "down time" for this automatic screw machine. "C" clamp with Pusher Pin and Porto-Power Ram pushes out a tight rocker pin in seconds. That's Porto-Power!

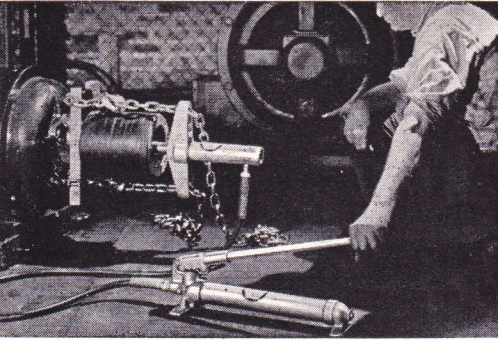


Leveling this giant machine becomes a one-man job with Porto-Power! 50-ton Ram with Toe-Lift Attachments lifts from a low height of only 2 1/4 inches!

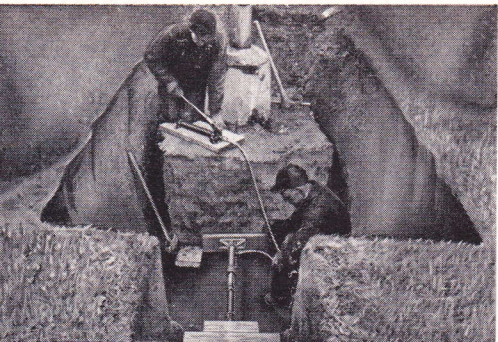
Porto-Power

Maintenance Assortments

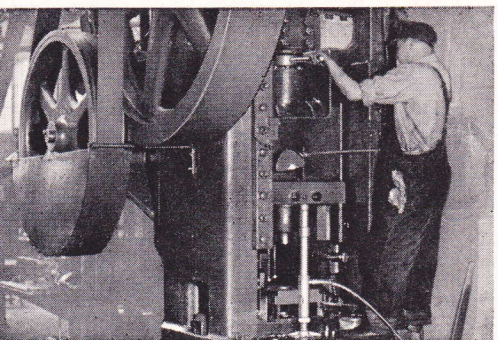
Only Blackhawk offers you **COMPLETE Hydraulic Maintenance Assortments** for really speedy, efficient repair work.



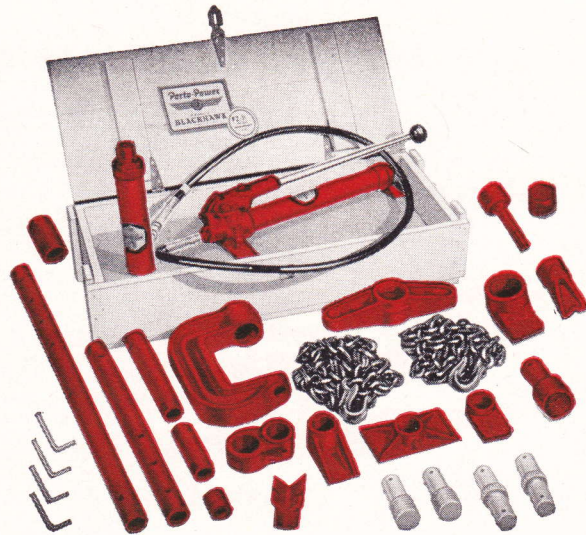
No prying—no sledging—no damage! Tension Porto-Power Jack with Chain and Chain Pull Plate quickly pulls pulley off motor. Long, flexible hose permits you to operate Porto-Power jack from a safe distance.



Hundreds of Dollars saved here! Moving this big iron pole and its heavy concrete anchor block is no trick for Porto-Power. Whether you want to move machinery, storage bins or even flag poles—speedy, efficient Porto-Power cuts job time way down and saves valuable man power!



Porto-Power replaces one man on this job! Jack is holding up cross head of press. Now one man can turn adjusting collar. Extension tubing can be assembled to any length; no dangerous blocking necessary!



FZ-31 General Maintenance Assortment

Multiply your manpower! This practical low-cost 10-ton set has the S-71 Jack plus 29 key attachments to do a variety of pushing, pulling, lifting, bending, spreading and clamping jobs. Savings in time and materials are spectacular! It's the basic set for maintenance in mines, mills, oil fields, machine shops, shipbuilding and construction work.

S-31 Maintenance Assortment is similar to the FZ-31, but has standard tubing instead of Lock-On Tubing.

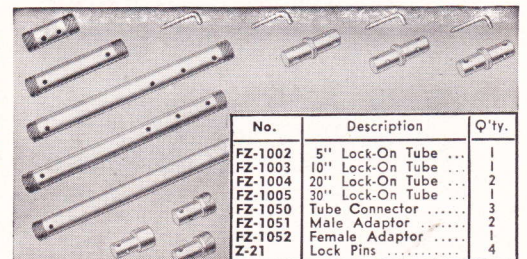
S-92 Assortment of maintenance attachments as furnished in S-31.

What the FZ-31 Assortment Contains

No.	Description	Qty.	No.	Description	Qty.
FZ-1002	5" Lock-On Extension	1	Z-16	90° "V" Base	2
FZ-1003	10" Lock-On Extension	1	Z-21	Lock Pin	4
FZ-1004	20" Lock-On Extension	1	Z-30	Spreader Ram Toe	1
FZ-1005	30" Lock-On Extension	1	Z-109	"C" Clamp, 4x6"	1
FZ-1050	Lock-On Connector	2	Z-129	Wedge Head	1
FZ-1051	Lock-On Male Adaptor	2	Z-132	Chain Pull Plate	1
FZ-1052	Lock-On Female Adaptor	1	Z-141	7-ft. Chain	2
S-71	10-Ton Hydraulic Unit	1	Z-183	Pusher Pin, 1 1/2" Dia.	1
Z-8	Clamp End Toe	1	Z-185	Smooth Saddle	1
Z-9	Spreader Plunger Toe	1	Z-192	Clamp Head	1
Z-10	Short Connector	1	19533	Reinforced Wooden Case	1
Z-14	Flat Base	1		34"x14"x8"	1

FZ-14 New 10-ton Lock-On Tubing Set

Lock-On Tubing cuts up to 50% off assembly time for Porto-Power set-ups. No more threading; tubing and attachments just slip together. Pins lock assembly together for pulling applications.



No.	Description	Qty.
FZ-1002	5" Lock-On Tube	1
FZ-1003	10" Lock-On Tube	1
FZ-1004	20" Lock-On Tube	2
FZ-1005	30" Lock-On Tube	1
FZ-1050	Tube Connector	3
FZ-1051	Male Adaptor	2
FZ-1052	Female Adaptor	1
Z-21	Lock Pins	4

Porto-Power

man-wasting methods.

No more damaging, hammering and prying.

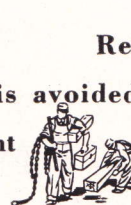


• eliminates dangerous blocking up.



Excessive use of heat is avoided.

Out go inefficient



Replaces old,

makeshifts.

FZ-15 Four-Ram Super Maintenance Assortment

This assortment has all Porto-Power equipment a maintenance man needs to lick tough repair problems in a hurry. He'll be able to pull gears, move machinery and heavy equipment, brace shafts, wheels, roof beams, and do hundreds of everyday maintenance jobs! Four Porto-Power rams! A midget ram lifts from a low of 1 $\frac{1}{16}$ "; handy short ram lifts 7 tons; plus versatile 10-ton ram and 20-ton heavy-duty ram. All are Spee-D-Coupler equipped, powered by one low-cost pump.

Forty-one ingeniously-designed attachments harness this wide range of power for universal application, offering 1001 ways to exert power exactly where you need it. You can push, pull, lift, press, bend, spread and clamp in many different ways! This truly "Super" Maintenance assortment includes new Lock-On tubing which cuts assembly time of set-ups up to 50%. Entire assortment packs in sturdy wooden box.

Here's What the FZ-15 Assortment Contains

No.	Description	Qty.	No.	Description	Qty.
FZ-1002	10-ton 5" Lock-On Tube	1	Z-21	Clamp Lock Pin	4
FZ-1003	10-ton 10" Lock-On Tube	1	Z-30	Spreader Ram Toe	1
FZ-1004	10-ton 20" Lock-On Tube	2	Z-34	Serrated Saddle	1
FZ-1005	10-ton 30" Lock-On Tube	2	Z-36	Tube Coupling	2
FZ-1050	10-ton Lock-on Tube Connector	3	Z-50	3" Tube	1
FZ-1051	10-ton Lock-On Tube Male Adaptor	2	Z-109	"C" Clamp (4"x6")	1
FZ-1052	10-ton Lock-On Female Adaptor	1	Z-129	Wedge Head	1
R-263	4-ton Ram	1	Z-132	Chain Pull Plate	1
RC-251	20-ton Ram	1	Z-141	Special $\frac{3}{8}$ " Chain, 7-ft. length with grab hook	2
RC-75	7 $\frac{1}{2}$ -ton Ram	1	Z-143	"C" Clamp Adaptor	1
S-71	Hydraulic Unit, 10-ton	1	Z-183	Pusher Pin ($\frac{1}{16}$ " diam.)	1
Z-5	Chain Plate	2	Z-185	Smooth Pusher Head	1
Z-9	Spreader Plunger Toe	1	Z-190	"C" Clamp (3"x4")	1
Z-10	Short Connector	2	Z-243	Ram Base (20-ton)	1
Z-14	Flat Base Plate	1	Z-305	Spreader Toe	2
Z-16	90° "V" Base	1	Z-436	Serrated Pusher Head (20-ton)	1
			19523	Wood Box—34"x18"x14"	1



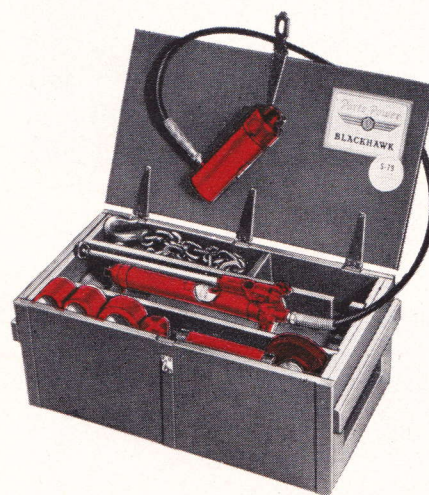
S-79 20-ton Heavy Duty Assortment

This set has the power to lick brute jobs with 20 tons of smooth, efficient hydraulic force. Right for moving, setting-up, leveling heavy machinery; for repair on cranes, shovels, bridges! Powerful assortment furnishes Chains and Chain Pull Plates for pulling; Couplings, Extensions, Pusher Head and Base Plate for pushing, pressing, spreading or lifting over any span at any angle. Toe-Lift attachment is used for low-level lifting. Dependable S-78 Porto-Power jack includes the P-76 Pump, Z-913 Hose with Spee-D-Coupler and 20-ton RC-251 Ram. This jack can also be used to power S-36 Pipe and Rigid Conduit Bender Assortment, pictured on page 19. The satisfaction of thousands of heavy-duty Porto-Power owners proves this equipment right wherever dependable, remotely-controlled hydraulic power is required. S-79 set comes in reinforced wooden chest for convenient carrying.

Here's What the S-79 Assortment Contains

No.	Description	Qty.	No.	Description	Qty.
Z-218	8-foot Chain	2	Z-243	Ram Base	1
Z-238	Chain Pull Plate	1	Z-436	Serrated Pusher Head	1
Z-239	10" Extension Tube	1	Z-595	Toe Lift	1
Z-240	20" Extension Tube	1	Z-607	Plunger Base	1
Z-241	30" Extension Tube	1	S-78	20-Ton Hyd. Jack	1
Z-242	Coupling	2	19563	Chest—35"x18"x14"	1

S-37 Assortment of 20-ton Attachments is identical to S-79 Heavy Duty Assortment, except that it does not include S-78 Jack.



In addition to these Maintenance Sets Blackhawk produces a full line of SPECIAL PORTO-POWER ASSORTMENTS FOR AUTO BODY REPAIR AND RECONDITIONING. Write Blackhawk Mfg. Co. for information on this special automotive equipment.

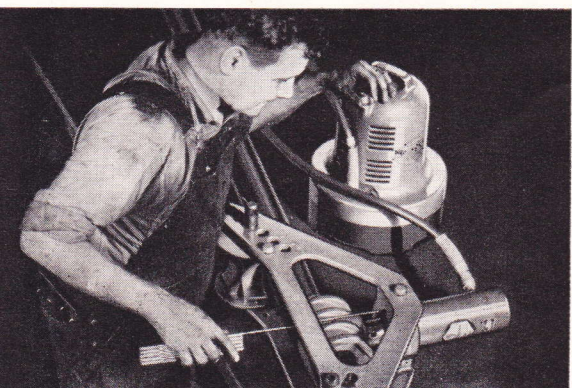
Porto-Power

Electrician's Pipe Benders

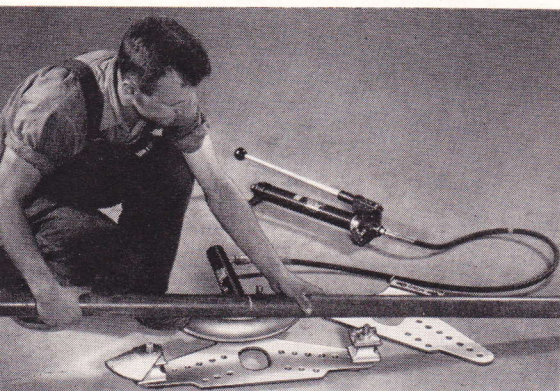
You can rely on Blackhawk Benders!
They're dependable and longer lived
—built by hydraulic Specialists!



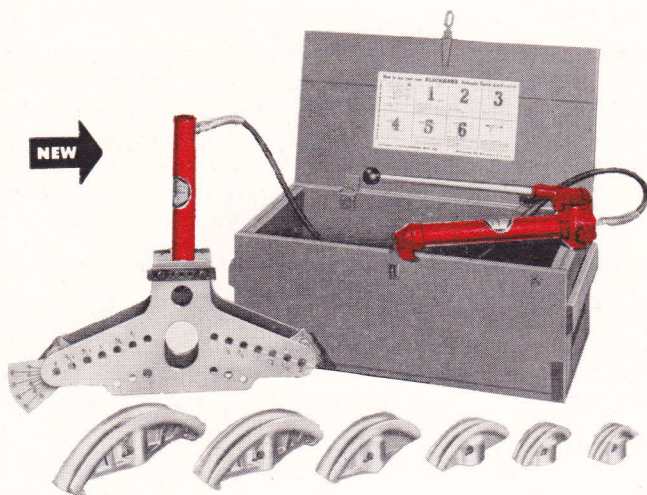
It's easy to bend an existing over-head pipe run from ladder. This can **only** be done with a completely portable, remotely-controlled Blackhawk Bender! Handiest!



This contractor cut his job time two thirds—saved 8 hours—with portable Blackhawk S-36 Bender, powered by an electrically-driven Porto-Power Pump. An electrically-driven Porto-Power pump will cut job time with Blackhawk Benders, Knock-Out Punches. See page 12!



MAKES SETUPS IN SECONDS! One lever unlocks top plate. Pipe can be laid in right from above. "Lock-On" shoes are switched in seconds. New exclusive "Optik-Angle" gauge records exact angle of bend (—15° to 105°) as work progresses. No measuring, no tables, no mathematics.



S-130 New "Featherweight" Aluminum Bender for 1/2" thru 2" Pipe and Rigid Conduit

New Hi-Speed Design Slashes Bending Costs!

Now you can get 90° bends in just one easy operation! A new design bending frame and new special "long-stroke" ram eliminate time-consuming multi-setup bends with shifting intermissions. A new "OPTIK-ANGLE" gauge constantly indicates degree of bend! Gone are guesswork, time-wasting measuring! Bends are made quickly and accurately. This new gauge speeds up making 180° bends, double offsets, others.

Bending frame, swivel and bending shoes are made of rigid featherweight aluminum. Bending frame weighs just 16 1/2 lbs.—just a breeze for one man to carry right to the job. Your men stay fresh and productive all day long and turn out more work! Removable top plate allows operator to lay in pipe from the top . . . no need to slide in pipe from the side. Also makes it amazingly easy to set bending shoes into position.





S-131 Set of aluminum pipe bender attachments in wooden carrying box excluding the S-72 hydraulic unit.

S-132 Same unit as S-130, but has speedy electric P-182 pump instead of P-76 hand pump.

What the S-130 Contains

S-130 Includes S-72 10-Ton Jack and following S-131 Asst. of Attachments

No.	Description	Qty.
RC-160	Ram	1
P-76	Pump	1
Z-913	Hose	1
Z-1200	Bending Frame	1
Z-1201	1/2" Bending Shoe	1
Z-1202	3/4" Bending Shoe	1
Z-1203	1" Bending Shoe	1
Z-1204	1 1/4" Bending Shoe	1
Z-1205	1 1/2" Bending Shoe	1
Z-1206	2" Bending Shoe	1
Z-1207	4-sided Swivel Shoe	2
Z-1208	Pull Pin	2
Z-1209	"Optik Angle" Gauge	1
Z-1210	Bending Shoe Lock Pin	1
19523	Wooden Carrying Box	1

HANDIEST! Blackhawk Benders work on side or upright,  on floor,  bench top, or overhead on existing pipe runs  whichever way is easiest to measure bend. **PORTABLE!** roll right to the job  easy to carry, too! **ACCURATE!**

S-34 Thin-Wall Conduit Bender for 1 1/4", 1 1/2" and 2" Diameters

Handiest Bender you can use! It's completely portable. No need to lug pipe to bender—carry bender to job and put to work anywhere on the floor, workbench, or existing pipe runs. You save steps, eliminate trial fitting. Operate the remotely-controlled pump from a distance—see entire bending operation. You'll make neat kinkless, uniform bends. This S-34 Kit includes the S-71 Porto-Power Jack and the complete S-35 assortment of attachments. S-71 jack also lifts, does 1001 other jobs with attachments listed on page 15.

S-35 Assortment of Attachments

If you already own an S-30A Rigid Pipe Bender and wish to bend thin-wall conduit, all you need is this money-saving assortment of attachments. The S-71 Porto-Power Jack powers both! If you own the S-78, SB-40, SB-41 or SB-43 set you already have the P-76 hand pump and need only one RC-159 ram to power this assortment of attachments. Packed in shipping carton.

S-30A Assortment Handles 1", 1 1/4", 1 1/2" and 2" Diameters of Rigid Conduit and Pipe

Save costly fittings, cutting and threading time! With this Blackhawk Bender you'll make kinkless bends, matched offsets in record time. It's remotely controlled! Move around, "jockey" pipe with one hand, sight along it—without interrupting the pumping.

What the S-30A Contains

S-30A Includes 10-Ton S-71 Jack and following S-83 Assortment of Attachments

No.	Description	Qty.	No.	Description	Qty.
Z-95	Four-Sided Pivot Shoe	2	Z-411	Bending Frame	1
Z-96	2" Bending Shoe—8" rad.	1	Z-413	Pull-Pin	2
Z-116	1 1/2" Bending Shoe—7" rad.	1	19519	Portable Reinforced Wooden Case 32"x12"x9 1/2"	1
Z-117	1 1/4" Bending Shoe—6" rad.	1			
Z-118	1" Bending Shoe—5" rad.	1			

S-36 Handles 1 1/4", 1 1/2", 2", 2 1/2", 3", 3 1/2" and 4" Diameters of Rigid Conduit and Pipe

It's super powered—a full 20 tons—requires less effort even on the toughest jobs. Pump is separated from bender by long, flexible hose. This enables you to "jockey" pipe around and sight degree of bend while pumping. You make truer, more uniform bends. Completely portable! Pivot shoes roll bender right to the job. With this Blackhawk Bender you can make any radius bend you need. Blackhawk's exclusive Spee-D-Coupler enables you to change hydraulic pump from one Pipe Bender or Knock-Out Punch to another in five seconds! Attachments and bending frame are heavy steel, extra rugged to withstand twist and distortion. Powerful S-78 Porto-Power Jack also performs miracles for maintenance, construction work when used with 20-ton attachments listed on page 15: It pushes, pulls, lifts, presses, bends, spreads, clamps!

What the S-36 Contains

S-36 Includes S-78 20-Ton Hydraulic Jack and following S-84 Assortment of Attachments

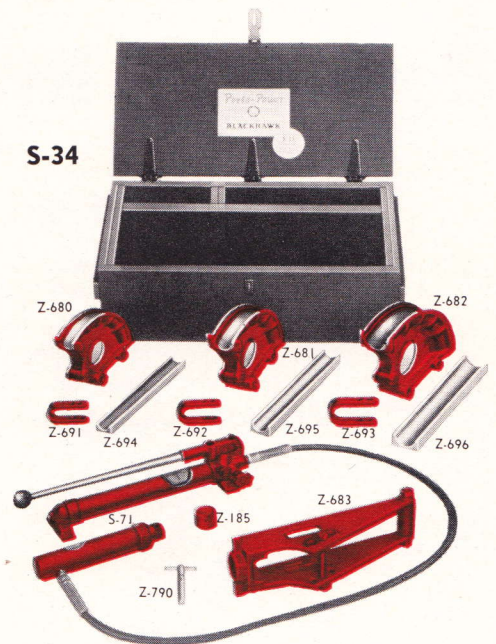
No.	Description	Qty.
Z-377	Bending Frame	1
Z-379	4-Sided Pivot Sh. for 2 1/2" to 4"	2
Z-381	4" Bending Shoe—16" radius...	1
Z-382	3 1/2" Bending Shoe—14" radius...	1
Z-383	3" Bending Shoe—12" radius...	1
Z-384	2 1/2" Bending Shoe—10" radius...	1
Z-385	2" Bending Shoe—8" radius...	1
Z-386	1 1/2" Bending Shoe—6 1/2" radius...	1
Z-387	1 1/4" Bending Shoe—5 1/2" radius...	1
Z-419	3-Sided Pivot Shoe for 1 1/4", 1 1/2", 2"	2
Z-421	Pull-Pin	2
Z-436	Plunger Protector Saddle	1
19523	Portable Reinforced Wooden Case 34"x18"x14"	1

What the S-34 Contains

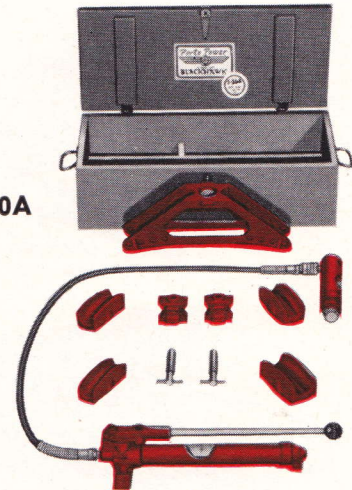
S-34 Includes 10-ton S-71 Hydraulic Unit and following S-35 Assortment of Attachments and 19568 Portable Case

No.	Description	Qty. in S-35
Z-680	1 1/4" Bending Shoe 6 1/2" radius	1
Z-681	1 1/2" Bending Shoe 7 1/4" radius	1
Z-682	2" Bending Shoe 8" radius	1
Z-683	Bender Frame Assembly	1
Z-691	1 1/4" "U" Strap Assembly	1
Z-692	1 1/2" "U" Strap Assembly	1
Z-693	2" "U" Strap Assembly	1
Z-694	1 1/4" Bending Support	1
Z-695	1 1/2" Bending Support	1
Z-696	2" Bending Support	1
Z-790	Strap Pin Assembly	1
Z-1185	Plunger Protector Saddle	1

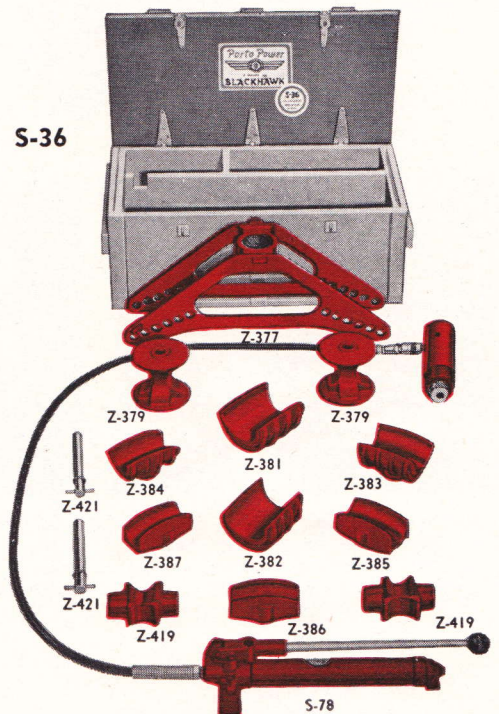
S-34



S-30A



S-36



NEW!

Porto-Power

Electricians' Hydraulic Knock-Out Punches

Now 9 lbs. lighter and lower cost!

Here is the speediest method for punching holes into electrical distribution boxes, metal panels and throughs. The fully remote-controlled hydraulic unit operates wherever holes have to be cut. No wrench swinging in close quarters, no skinned knuckles! Set-ups are easy to make, require minimum assembly time.

New smaller, more compact hydraulic pump, ram and hose weigh only 13 lbs.—more than 9 lbs. less than old-fashioned models. Just a breeze to carry, set-up and operate!

New design hollow push-pull ram travels faster, retracts automatically when pressure is released. Unit is ready for immediate re-setting. Use ram also for pulling cable, wheels, or lifting machines and many other maintenance jobs.

For bigger jobs, power your Knock-Out set with an electrically-driven hydraulic pump (see page 12)—it's three to six times faster!

SB-62 NEW Master Assortment for 1/2" to 4" diameters

Includes everything for punching holes for 10 conduit sizes: 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 3 1/2", and 4". Packed in sturdy metal carrying case with instructions imprinted.

SB-61 NEW Set punches 1/2" through 2" diameters

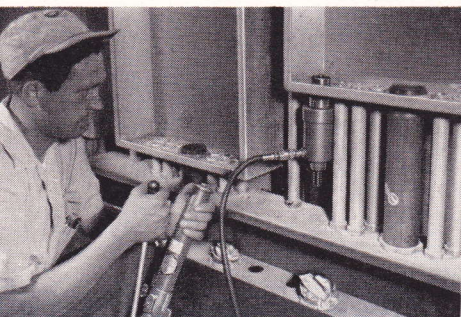
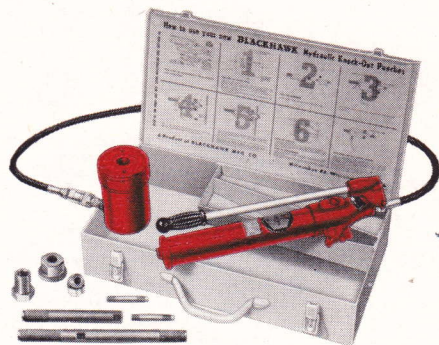
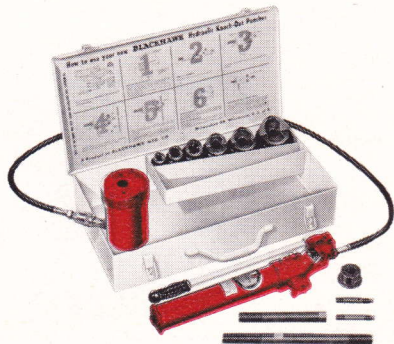
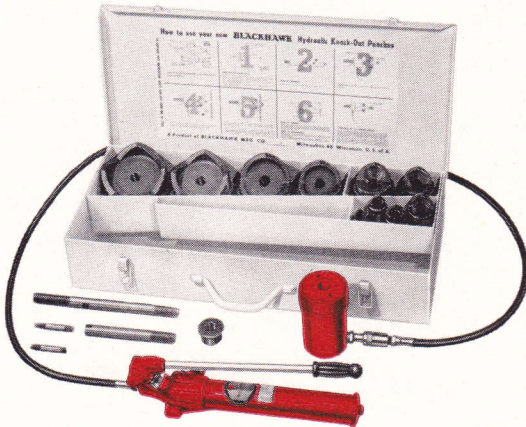
Includes six precision-machined knock-outs plus pump, ram, hose and all pulling attachments to punch holes for 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" diameter pipe. Packed in sturdy metal carrying case.

SB-60 NEW Converter Kit for Hand-Operated Punches

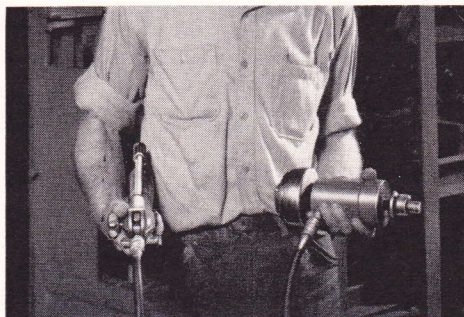
Serves any leading brand of knock-out punch in the field whether hand or hydraulically operated. This set includes everything you need—hydraulic unit, pulling attachments, even an adaptor so that you can utilize your old 3 1/2" and 4" diameter punches.

Contents of SB-62, SB-61 and SB-60

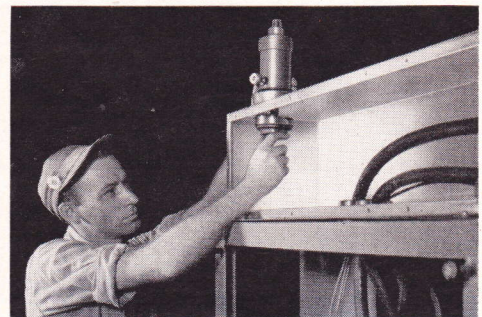
No.	Description	SB-62	SB-61	SB-60	No.	Description	SB-62	SB-61	SB-60
Z-1038	7/8" Punch				AV-1432	3 1/2" Die		—	—
Z-1039	7/8" Die				Z-1054	4" Punch		—	—
AV-123	1 1/8" Punch			—	Z-1055	4" Die		—	—
AV-124	1 1/8" Die			—	Z-1056	4 1/2" Punch		—	—
AV-125	1 1/8" Punch			—	Z-1057	4 1/2" Die		—	—
AV-126	1 1/8" Die			—	Z-1221	Long Pull Rod			
AV-127	1 1/8" Punch			—	Z-1222	Short Pull Rod			
AV-128	1 1/8" Die			—	Z-1223	Pull Rod Nut			
AV-439	1 1/8" Punch			—	Z-1224	Pull Stud	2	2	2
AV-440	1 1/8" Die			—	Z-1226	Case			
AV-441	2 3/8" Punch			—	P-400	Pump			
AV-442	2 3/8" Die			—	RC-112	Ram			
AV-1429	2 3/8" Punch		—	—	Z-864	Hose			
AV-1430	2 3/8" Die		—	—	Z-1225	Case	—		
AV-1431	3 1/2" Punch		—	—	Z-1229	Converter	—	—	



Tight spaces are no problem! You can punch everywhere—no matter what the obstructions. Extra long hose lets you operate where it's most convenient.



A lightweight tool! Unit weighs only 13 lbs., —is easy to carry, easy to setup, easy to operate. No wasted effort, cuts fatigue to a minimum.



Speedy Operation! No special spacers and adaptors necessary with free-fitting threads—a flick of the wrist speeds punch up the rod.

Porto-Power®

Low-Cost, Highly Flexible Hydraulic Presses

They're easy to adapt to meet your individual requirements!

Porto-Power components offer you a low-cost, easy way to build your own hydraulic press that fulfills your individual testing or production requirements as illustrated in application pictures below! Porto-Power supplies dependable, efficient hydraulic force: Use Porto-Power rams in capacities from 4 through 50 tons singly or in series. Gauges, measuring "Lbs. Total Load" or "Lbs. per Sq. Inch," can be connected to rams in a few seconds. Rams are powered by Porto-Power hand pumps—or for utmost convenience and operating speed by electrically-driven Porto-Power pump.

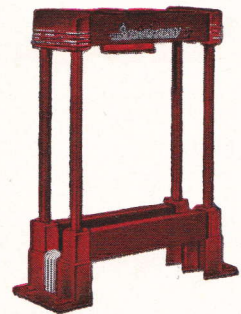
The Porto-Power line also includes the Z-258 10-ton Press. It is used today by thousands of manufacturers because it offers one of the fastest ways to assemble, straighten, test and compress all types of materials and machine parts. A favorite in maintenance departments, too!

Z-258 Standard 10-Ton Porto-Power Press

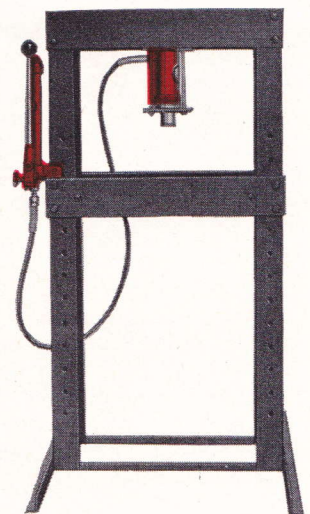
Used with S-71 10-ton Porto-Power Jack. Solid steel bars on top and bottom and extra heavy rods make press sturdy and rigid. Sliding lock-holder for jack is included. Build your own workholders and fixtures right into this bench press. Width across bed, 15"; clearance between jack and bed, 14½"; space between cross members, 3¼"; space between steel uprights, 3½". Porto-Power Jack can be easily removed for use with standard attachments listed on page 15.

FREE Blueprints for 20 or 50-ton Press

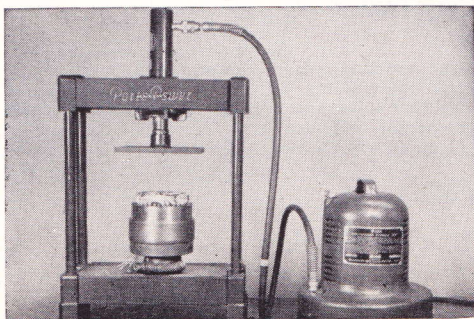
Build your own low-cost, portable hydraulic press. It's simple! Blackhawk furnishes you a free set of blueprints and all necessary information to construct a job-tested 20- or 50-ton press. Follow these easy instructions or develop your own design from here to meet your specific requirements. Versatile Porto-Power Jacks, being remotely-controlled may be combined in many different set-ups. Illustrated is an assembled hydraulic press with 20-ton S-78 Porto-Power Jack. Similar press uses S-80 Jack.



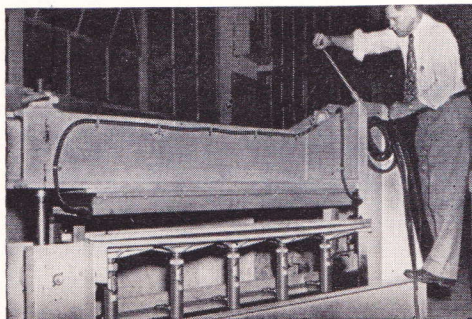
Z-258



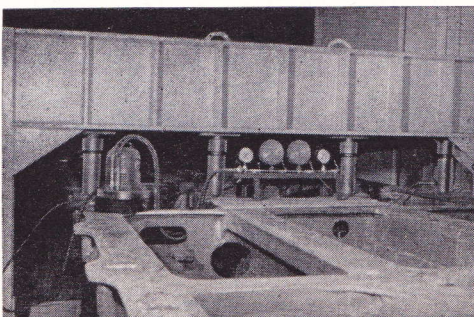
"Build Your Own"



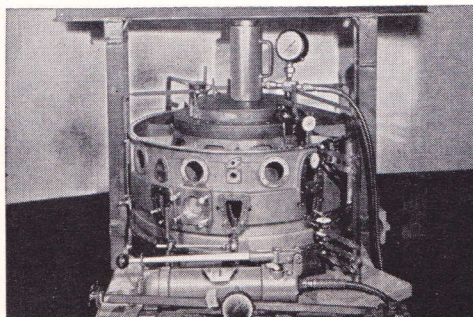
Manufacturer installed two additional Porto-Power presses after proving that 10-ton press, powered by motor-driven pump, is fastest, most efficient way for pushing field coil into electric motor.



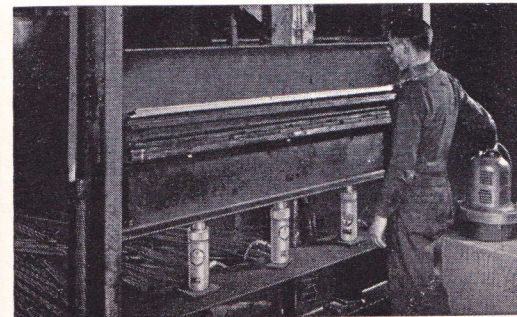
This shop-built press meets a special problem in the production of rubber coated paper. Five easy-to-install 20-ton Porto-Power rams, powered by P-85, exert up to 100 tons of smooth hydraulic force.



Testing design and structural strength of huge railway car castings is no problem for highly flexible Porto-Power. Press utilizes four 50-ton rams, powered by motor-driven pump.



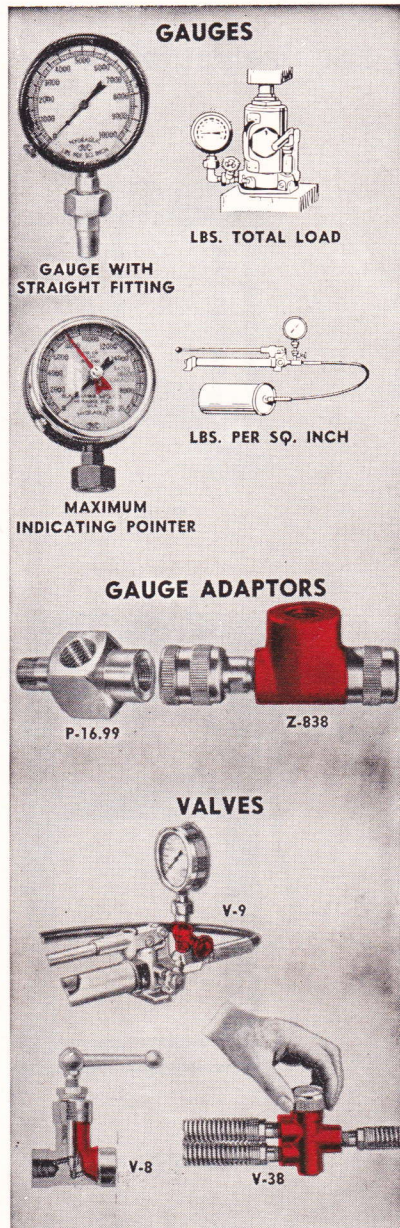
Aircraft manufacturer is using this shop-built press for deflection testing of jet engine frames. Gauge-equipped Porto-Power jack fast exerts up to 50 tons of pressure.



Manufacturer reports: \$3,200 saved! It cost \$800 to build this Porto-Power equipped straightening and drawing press. Mechanical press to do same job would cost \$4,000!

Blackhawk Gauges, Valves

This Gauge Equipment makes Blackhawk Jacks and Porto-Power highly efficient testing tools!



Equip your Blackhawk Hand Jacks and Porto-Power with these gauges for fast, accurate, low-cost laboratory, production and construction tests. On the job reports prove that Blackhawk gauges are widely used for fatigue, deflection, stress and rupture tests; testing of materials, welds, castings; testing density of soil and road surfacing materials. Blackhawk gauges measure either "Lbs. Total Load" or "Lbs. per Sq. Inch." All Blackhawk gauges are highly accurate with variations of only plus-or-minus 2% in accordance with Government standards. Gauges are easy to install using normal field tools. Hand Jack Specifications (pages 5, 6 and 7) list all jacks that can be gauge equipped. All Porto-Power pumps and rams can be gauge equipped using the P-16.99 Adaptor listed below. Gauges, cataloged here, are 4 1/2" in diameter. For special applications, requiring gauges other than listed here, write Blackhawk outlining type of application and "effective area of ram plunger."

Lbs. Per Square Inch Gauges

Generally used with Porto-Power Pumps when fluid, under pressure, is injected directly into tubular materials, or to register internal fluid pressures of jacks during rupture tests.

Z-721 has straight fitting for CG-9 and D-8.7G jacks and Porto-Power. 100 Divisions with 0 to 10,000 "Lbs. per sq. inch" readings.

Z-722 Gauge has "L" fitting for 20, 30, 50 and 100-ton jacks. Has 100 divisions with 0 to 10,000 "Lbs. per sq. inch" readings.

GAUGE ADAPTORS

Z-838 provides quick installation of gauge into Spee-D-Coupler-equipped hose lines. Adaptor simply thumb screws to couplers on hose. Top outlet is primarily for gauge, but is easily converted with reducer bushing to take auxiliary Porto-Power hose. Has ZR-400 Half Coupler, Z-410 and Z-603 Caps.

VALVES

V-38 Remote Control

If you want to control a motor-driven Porto-Power pump from a distance, use this V-38 Remote Control. It saves steps, cuts work time when installed in hose line near ram. Knob controls releasing and holding load. Complete assembly of valve and hoses available as model SC-4 (includes two Z-914 and one Z-913 hose plus V-38 valve as illustrated).

"Lbs. Total Load" Gauges

Use these gauges for measuring the load supported by a jack or Porto-Power. Weighing large, cumbersome members, pressing parts together under pre-determined loads and sinking pilings are typical applications. Gauges are furnished either with straight fittings or "L" fittings for 20, 30, 50 and 100-ton jacks.

Lbs. Total Load Gauges				
Blackhawk Jack and Porto-Power Models	Uses Gauge Model	Gauge Reading, Lbs.	Lbs. Per Division	No. of Divisions
CG-9	C-100S	20,000	200	100
D-8.7G	D-100S	30,000	400	75
EA-11	EA-100L	50,000	500	100
EA-27	EA-100S	50,000	500	100
FB-11 & FA-11	FA-100L	80,000	1000	80
GB-11	GA-100L	120,000	2000	60
N-12	N-100L	240,000	4000	60
R-75	C-100S	20,000	200	100
R-159	Z-293	24,000	250	100
R-251	Z-494	50,000	500	100
R-210	GA-100S	120,000	2000	60

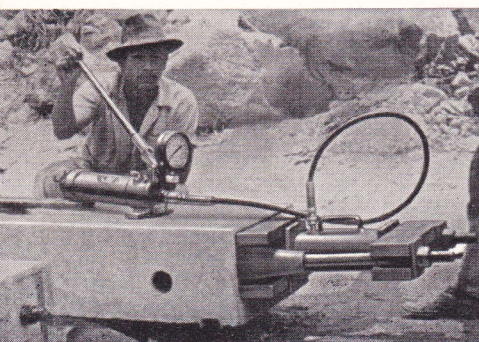
Z-881 Maximum Indicating Pointer

enables you to check maximum pressure created. Red pointer, mounted on plastic cover, follows regular gauge pointer as pressure increases, then stays at maximum reading when regular pointer returns to zero after pressure is released. Resets to zero.

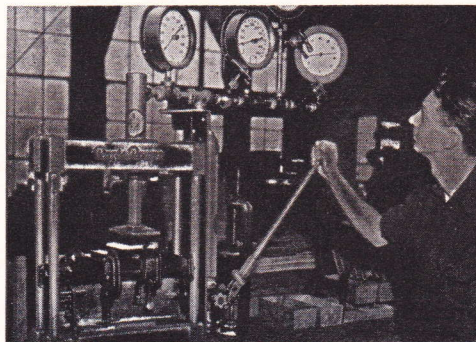
P-16.99 Gauge Adaptor is necessary whenever attaching gauge between Porto-Power Pump and Hose. It has 3/8" female standard pipe thread for hose connection and 3/8" male thread for pump connection. Side tap is 1/2" female for insertion of gauge or V-9 Choker Valve.

V-9 Choker is manually adjusted needle valve for throttling oil out of gauge to prevent snapping of pointer when suddenly releasing load. Recommended when testing materials to destruction. Has 1/2" male and female pipe threads.

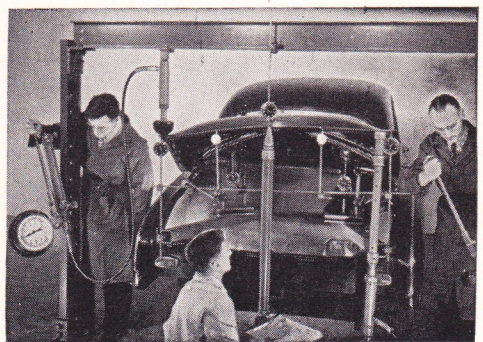
V-8 Shut-Off provides positive shut-off. 10,000 p.s.i. capacity. Has 3/8" female pipe taps.



Gauge-equipped 50-ton Porto-Power Jack is an inexpensive, convenient, and practical tool for pre-stressing concrete. Here cellular bridge sections are being pre-stressed.



These gauges register pressure exerted by Porto-Power ram during rupture tests on plastic materials. This is a low-cost, highly efficient easy to assemble, testing set-up.



Gauge-equipped Porto-Power jacks are the really practical tool for conducting this theoretical deflection analysis on car body. Pressure exerted is accurately measured by gauges.

and High Pressure Fittings

These Fittings make Porto-Power even more versatile—
even easier to install into production and testing fixtures!

These specially engineered high-pressure forged steel fittings make Porto-Power more adaptable for your specific needs. Wherever it is more practical to use pipe in place of Porto-Power hose Blackhawk Fittings will provide safe, strong and dependable connections for all Porto-Power hook-ups (except P-228 pump). Blackhawk Fittings are job engineered—they withstand vibrations—minimize frictional losses—insure high sealing qualities.

Recommended Tubing

Blackhawk is not the source of high pressure pipe or tubing but recommends the use of *cold drawn* steel tubing instead of regular pipe in the following dimensions:

In place of 1/4" pipe, use 3/8" O.D. x 11 ga. (.120") wall

In place of 3/8" pipe, use 1/2" O.D. x 11 ga. (.120") wall

In place of 1/2" pipe, use 3/4" O.D. x 11 ga. wall

What you can do with Blackhawk Fittings

Build Manifolds

If your set-up requires operation of several rams from one pump simultaneously, you can make up a variety of manifolds simply by connecting various fittings such as crosses, tees, etc.

For powering several rams simultaneously, but independent from each other, by same pump, use a V-8 Shut-Off valve between each hose or tube that connects to a ram.

Connect Porto-Power Hoses

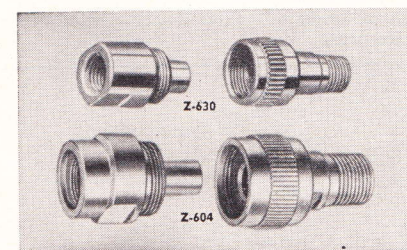
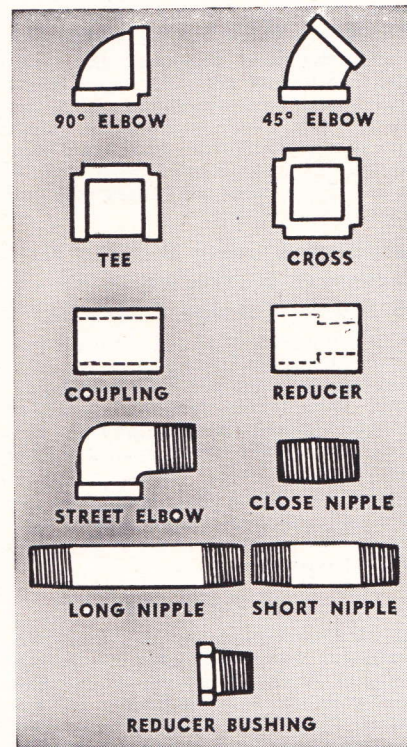
Special applications, requiring extra long hose, can be made up by connecting 6 ft. lengths of Porto-Power Hose. Use FZ-1605 Coupling for Bantam hoses; FZ-1614 Coupling for standard hoses.

Interchange Bantam with 10-ton Porto-Power Equipment

The FZ-1630 Reducer Bushing reduces a 3/8" tap (of 10-ton Porto-Power equipment) to a 1/4" Bantam tap. Bushing is solid brass.

Blackhawk Hydraulic High-Pressure Forged Steel Fittings

FOR 1/4" PIPE		FOR 3/8" PIPE		FOR 1/2" PIPE	
Nos.	Description	Nos.	Description	Nos.	Description
FZ-1601	1/4" 90° Elbow	FZ-1610	3/8" 90° Elbow	FZ-1620	1/2" 90° Elbow
FZ-1602	1/4" 45° Elbow	FZ-1611	3/8" 45° Elbow	FZ-1621	1/2" 45° Elbow
FZ-1603	1/4" Tee	FZ-1612	3/8" Tee	FZ-1622	1/2" Tee
FZ-1604	1/4" Cross	FZ-1613	3/8" Cross	FZ-1623	1/2" Cross
FZ-1605	1/4" Coupling	FZ-1614	3/8" Coupling	FZ-1624	1/2" Coupling
FZ-1606	1/4" Street Elbow	FZ-1615	3/8" Reducer (to 1/4")	FZ-1625	1/2" Reducer (to 3/8")
FZ-1607	1/4" Close Nipple, 7/8" long	FZ-1616	3/8" Street Elbow	FZ-1626	1/2" Street Elbow
FZ-1608	1/4" Short Nipple, 1 1/2" long	FZ-1617	3/8" Close Nipple, 1" long	FZ-1627	1/2" Close Nipple, 1 1/8" long
FZ-1609	1/4" Long Nipple, 2" long	FZ-1618	3/8" Short Nipple, 1 1/2" long	FZ-1628	1/2" Short Nipple, 1 1/2" long
		FZ-1619	3/8" Long Nipple, 2" long	FZ-1629	1/2" Long Nipple, 2" long
		FZ-1630	Reducer Bushing 3/8" to 1/4"		



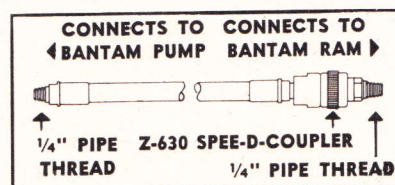
Interchange Rams in only 5 Seconds with exclusive **Porto-Power** Spee-D-Coupler

Z-630 Bantam Spee-D-Coupler for 4-ton Bantam only

Z-630 (complete) includes ZH-630 and ZR-630 Half Couplers and Z-640 Cap. ZH-630 is male (hose) half of coupler; has 1/4" female pipe thread. ZR-630 is female (ram) half; has 1/4" male pipe thread, includes Z-640 Cap that seals when disengaged. Z-641 Cap seals ZH-630 (male) half when disengaged. Small size does not permit use with larger capacity Porto-Power hose and rams.

Z-604 Regular Spee-D-Coupler for all Porto-Power except Bantam

Z-604 (complete) includes ZH-604 and ZR-400 Half Couplers and Z-410 Cap. ZH-604 is male (hose) half of Spee-D-Coupler and has 3/8" female pipe thread. ZR-400 is female (ram) half of Spee-D-Coupler and has 3/8" male pipe thread, includes Z-410 Cap. Z-410 Cap seals ZR-400 half of coupler when disengaged. Z-603 Cap seals ZH-604 half of coupler when disengaged.



Z-887 Bantam Hose

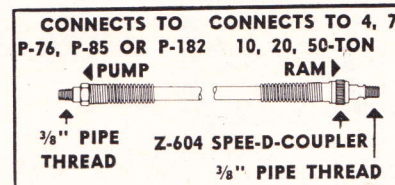
Long-Lived, Flexible **Porto-Power** Hose

Z-887 Bantam Hose Z-864

Specially designed, durable hydraulic hose to meet the requirements of 4-ton Porto-Power. Available only in 6-ft. length. Z-887 Hose has complete Bantam Z-630 Spee-D-Coupler. Has 1/2" O.D. and is for use with Bantam only—not interchangeable with regular Porto-Power hose. For replacement purposes and auxiliary use, Z-864 Bantam Hose has ZH-630 male half of Spee-D-Coupler (connects to ZR-630 half coupler on Porto-Power rams).

Z-914 Regular Hose Z-913

Long-lived, specially designed hydraulic hose for 1b, 20 and 50 ton Porto-Power. Available in 6 and 2 ft. lengths (see 2-ft. Z-916 Hose below). Z-914 Regular Hose is 6 ft. long, complete with Z-604 Spee-D-Coupler. Z-913 Hose is 6-ft. length with ZH-604 male half of coupler (connects to ZR-400 female half in ram) for replacement and auxiliary use. Z-916 Regular Hose, 2-ft. in length, for replacement use has 3/8" male pipe thread for connecting to R-242 Ram (see R-265 ram, page 9); other end has ZR-400 half coupler.



Z-914 Regular Hose

Foam-Resistant Blackhawk Hydraulic Oil

LX-21 New RLS Jack Oil for Hand-Operated Porto-Power Pumps

First with these important additives: RUST PREVENTERS eliminate rust hazard due to moisture; LUBRICITY IMPROVERS give smooth operation, less parts wear! SLUDGE STOPPERS prolong oil life. A lower pour point (-65°) and anti-foam action protect your valuable Porto-Power.

LX-22 Oil for Electrically-Driven Porto-Power Pumps

A special foam-resistant oil with high lubricating qualities which is necessary for the high speeds and pressures generated by these pumps. Keeps them running smoothly, efficiently and coolly. Available in metal containers—see Porto-Power price list.



Convenient **AUTHORIZED BLACKHAWK** **SERVICE DEPOTS Coast to Coast!**

The Authorized Blackhawk Service Depots listed here are strategically located to offer fast, low-cost repair service. Each depot is well-equipped, manned with Blackhawk-trained personnel, and maintains an adequate stock of genuine Blackhawk Parts. For quality workmanship, that brings "like new" performance, select your nearest Authorized Blackhawk Service Depot. Only repairs performed by an authorized depot are backed with full Blackhawk guarantee.

Selected, Leading Distributors Represent Blackhawk in all 48 States, Foreign Countries!

Outstanding industrial and electrical supply houses in all trading areas are franchised to stock and sell Blackhawk equipment. Their representatives are qualified to offer helpful counsel on the many profit-making, money-saving applications of Blackhawk Hydraulic Tools.

A large force of experienced direct factory field men assist these loyal supply houses in training personnel to serve the needs of Blackhawk customers.

Your Guarantee

All Blackhawk Jacks and all Porto-Power equipment and attachments are guaranteed for 90 days from day of purchase against defects in workmanship and materials. Free repair or replacements will be made on all items that do not stand up to this guarantee. Following manufacturers' trade customs, chains can not be guaranteed.

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Little Rock
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Sacramento
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437 Broadway

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62 Carlisle Street

FLORIDA
Jacksonville
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Miami
1936 S. W. 8th Street
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Atlanta
843 Memorial Dr., S. E.

ILLINOIS
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Peoria
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Boise
4449 Chinden Blvd.

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38 Shelby Street

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KANSAS
Wichita
148 North Water Street

KENTUCKY
Louisville
1226 Rowan St.

LOUISIANA
New Orleans
2021 Thalia Street

MARYLAND
Baltimore
1728 Lamont Avenue

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Cambridge
93 First Street

MICHIGAN
Detroit
2715 Fifth at Grand River
Grand Rapids
436 Bond Street, N. W.

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MISSOURI
Kansas City
3739 Woodland Avenue
St. Louis
3216 Delmar Blvd.

MONTANA
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307 Third Avenue, South

NEBRASKA
Omaha
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NEW YORK
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1675 Broadway
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346 Avenue H
San Antonio
511 Austin Street

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2,165,503
2,165,504
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2,188,957
2,200,133
2,218,318
2,218,319
2,229,256
2,231,680
2,235,643
2,255,984
2,255,985
2,255,987
2,259,533
2,262,969
2,277,256
2,283,089
2,296,173
2,299,492
2,311,468
2,375,310
2,430,100
2,459,080
2,475,040
2,492,291
2,530,887
2,625,796

Hydraulic Jacks

2,164,621
2,238,968
2,314,589
2,327,180
2,625,796

Wheeled Jacks

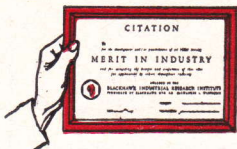
2,156,543
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2,568,827

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Bench-Rack



This catalog describes many unique ideas for saving time, materials and money with Blackhawk Hydraulic Tools. If you have developed a new, unique, cost-cutting application of Blackhawk Hydraulic Tools in your company, you will not only do a better job, but you have the opportunity to earn some extra money as well! Blackhawk will pay the cash awards listed in next column for the best original ideas every 90 days! In addition to the cash prize every worthwhile idea receives an attractive "Merit in Industry" citation, ideal for framing! Rush description of your idea to the Blackhawk Mfg. Co., Industrial Research Institute, Milwaukee 46, Wis.

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"IDEA MEN" OF INDUSTRY! Blackhawk has Cash Awards for You!

1st Grand Award\$50.00
2nd Grand Award\$25.00
3rd Grand Award\$15.00
1st Honorary Award\$12.50
2nd Honorary Award\$10.00

(All worth-while entries receive citations. Duplicate prizes will be awarded in event of a tie.)

Rules Are Few and Simple

1. Any idea is eligible for cash awards if its application is not already pictured in the "Blackhawk IDEA BOOK" or in this catalog.
2. Any one can compete except a direct employee of the Blackhawk Mfg. Co.
3. Any idea submitted under this plan is given to the Blackhawk Mfg. Co., with the understanding that the idea can be published along with pictures, sketches and data supplied with the entry. (When publishing your idea, your name or the name of your employer can be withheld from print on your

request. However, the names of all winners are subject to public announcement.)

4. An entry must be accompanied by a sketch or photo of the installation. Sketches can be free-hand "roughs." Photos can be ordinary amateur snapshots, although 8x10 commercial-quality photos are preferred.

5. There will be four contests each year . . . one for each quarter. Entries postmarked within the quarter (example: April, May, June) will be judged with other entries for that quarter. This contest will continue indefinitely, year after year—although Blackhawk naturally reserves the right to change the contest rules or terminate the contest at the beginning of a new year.

6. To give everyone a better chance for prizes—entries not winning in one quarter will be held over for the next quarter's competition. This 90-day extension of eligibility is made to avoid the possibility that several extremely unusual entries might destroy the prize-winning chances of other excellent entries.